DENVER
COLO.
THE MINE & SMELTER SUPPLY CO.
MACHINERY & MINING SUPPLIES
ELECTRICAL APPARATUS & SUPPLIES
SALT LAKE CITY
UTAH
THE MINE & SMELTER SUPPLY CO.
EL PASO
TEXAS

Catalog No. 76

The Mine and Smelter Supply Co.

DISTRIBUTORS OF

Electrical Supplies *and* Equipment

ELECTRICAL SPECIALTIES, METERS
MOTORS, POLE LINE HARDWARE
FANS, TELEPHONES, LAMPS, WIRE
WIRING MATERIAL, HEATING DEVICES
AND STREET LIGHTING EQUIPMENTS

MASSCO
QUALITY and SERVICE

DENVER - EL PASO - SALT LAKE CITY
NEW YORK

The Electrical Jobbers Catalog Company, Grand Rapids, Michigan, Publishers

In this issue, which supersedes all others, we have endeavored to include all material and appliances that are useful and necessary in the construction and operation of electrical installations and apparatus which is in general use.

The large stocks of supplies which we carry and our extensive manufacturing connections enable us to offer exceptional advantages in the prompt and complete shipment of orders.

"Wholesale only" is our policy, and our sales organizations are trained along this line and are in a position to serve you better.

We have adopted the Code of Ethics of the Electrical Supply Jobbers Association, which is as follows:

Section 1. It is the function of a jobber to provide the most efficient yet most economical means for offsetting the natural obstacles which oppose direct communication between the producer and the consumer of electrical materials.

Section 2. Realizing that the function of a jobber is entirely that of service in one form or other, we recognize also that the measure of our success will be determined by the degree to which the service rendered by us affects favorably the safety, convenience and contentment of those to whom, in the final analysis, it is addressed, namely—the public.

Section 3. Second in importance only to our duty to the public we acknowledge our duty to the electrical industry of which we must hold ourselves worthy representatives.

Section 4. In accepting recognition as an important and inseparable branch of a great industry, we acknowledge the resulting responsibility that we must by careful study attain a sympathetic understanding of—

a. The functions performed by all other branches of the Electrical Industry.

b. The problems with which such other branches find themselves confronted to the end that we may intelligently and effectively support any effort which has for its object to increase the ability of the entire industry to serve the public more efficiently and economically.

Section 5. Bearing in mind that only through use of the highest quality of electrical materials can the public be properly safeguarded, and consistent with our desire to be representative of the highest type of business enterprise, we shall purchase and sell only materials which we believe are representative of the safest and most widely approved practices in the industry.

Section 6. Knowing that permanent success in any line of human effort comes only to those who develop their talents, character and business in accordance with the laws of honor and fairness, we shall endeavor to be guided by those standards, always recognizing that a simple but infallible guide to right action is found in the practice of measuring all our own words and actions by what we would wish others to say or do if positions were reversed.

In compiling this catalog, we have endeavored to make it a complete and up-to-date reference book of standard electrical supplies and equipment, illustrating and describing material that is in demand daily—keeping accuracy and simplicity foremost in our minds. Special catalogs and bulletins will be furnished upon request, covering supplies and equipment not fully described or shown in this catalog.

List Prices

The list prices shown in this catalog agree with the latest list prices in effect at time of issue. These list prices are not offered as a quotation, and are subject to change without notice. You will find our prices as low as good business and quality permit.

Terms

To parties of approved credit, net 30 days. Unless your credit standing is known to us, we recommend that you accompany your first order with a financial statement of your business and references, so as to avoid delay. C. O. D. or sight draft shipments must be accompanied by a remittance sufficient to pay transportation charges both ways and storage charges, to insure us against loss should shipment be refused.

Orders

When ordering by telegram, always give catalog number, or description where no catalog number is given, together with catalog page reference.

Mail orders should give a complete catalog number and description to avoid delay. Complimentary order books will be furnished upon request.

Routing Shipments

Customers should send shipping instructions with all orders. In their absence we will use our own judgment as to the best route.

Loss and Damage in Transit

We do not hold ourselves responsible for any loss or damage in transit, and all claims of such character should be made promptly against transportation company. We will always be glad to assist you in securing an adjustment of any claim.

Shortage

All goods are double checked to prevent errors and shortages. All claims for shortage should be made to us promptly upon receipt of shipment.

Returning Goods

We will not receive goods returned for credit or exchange without first giving our permission to return and instructions for shipping. We stand ready at all times to rectify any mistakes that we make.

In this issue, which supersedes all others, we have endeavored to include all material and appliances that are useful and necessary in the construction and operation of electrical installations and apparatus which is in general use.

The large stocks of supplies which we carry and our extensive manufacturing connections enable us to offer exceptional advantages in the prompt and complete shipment of orders.

"Wholesale only" is our policy, and our sales organizations are trained along this line and are in a position to serve you better.

We have adopted the Code of Ethics of the Electrical Supply Jobbers Association, which is as follows:

Section 1. It is the function of a jobber to provide the most efficient yet most economical means for offsetting the natural obstacles which oppose direct communication between the producer and the consumer of electrical materials.

Section 2. Realizing that the function of a jobber is entirely that of service in one form or other, we recognize also that the measure of our success will be determined by the degree to which the service rendered by us affects favorably the safety, convenience and contentment of those to whom, in the final analysis, it is addressed, namely—the public.

Section 3. Second in importance only to our duty to the public we acknowledge our duty to the electrical industry of which we must hold ourselves worthy representatives.

Section 4. In accepting recognition as an important and inseparable branch of a great industry, we acknowledge the resulting responsibility that we must by careful study attain a sympathetic understanding of—

a. The functions performed by all other branches of the Electrical Industry.

b. The problems with which such other branches find themselves confronted to the end that we may intelligently and effectively support any effort which has for its object to increase the ability of the entire industry to serve the public more efficiently and economically.

Section 5. Bearing in mind that only through use of the highest quality of electrical materials can the public be properly safeguarded, and consistent with our desire to be representative of the highest type of business enterprise, we shall purchase and sell only materials which we believe are representative of the safest and most widely approved practices in the industry.

Section 6. Knowing that permanent success in any line of human effort comes only to those who develop their talents, character and business in accordance with the laws of honor and fairness, we shall endeavor to be guided by those standards, always recognizing that a simple but infallible guide to right action is found in the practice of measuring all our own words and actions by what we would wish others to say or do if positions were reversed.

GROUP ARRANGEMENT

For the convenience of our customers we have listed the material in this catalog in groups, according to their classification. This arrangement is intended to serve as a quick reference to the pages on which the material is listed.

A complete alphabetical index will be found in the center of this catalog.

Group 1 — **Wires, Cables and Conduits**
Pages 6 to 75
Wires, Cables, Cords, Steel Strands, Conduits and Fittings.

Group 2 — **Wiring Devices and Convenience Outlets**
Pages 76 to 164
Sockets, Rosettes, Receptacles; Snap, Push and Tumbler Switches; Attachment Plugs.

Group 3 — **Fuses, Switches and Panel Boards**
Pages 165 to 223
Fuses, Fuse Fittings, Switchboards, Panel Boards and Cabinets.

Group 4 — **Telephones and Signal Apparatus**
Pages 224 to 261
Telephones and Telephone Equipment, Bells, Buzzers, Sirens, Annunciators, Push Buttons and Bell-Ringing Transformer Apparatus.

Group 5 — **Insulating Materials and Tapes**
Pages 262 to 273
Untreated and Treated Cloths and Papers, Friction and Rubber Tapes, Mica, Slate and Asbestos.

Group 6 — **Power and Industrial Apparatus**
Pages 274 to 345
Motors and Control Apparatus, Instruments, Transformers, Generator Equipment, Arc Welding and Lightning Arresters.

Group 7 — **Pole Line Material, Tools and Insulators**
Pages 346 to 422
Poles, Cross-Arms, Pole-Line Hardware, Insulators, Construction Tools, Porcelain Knobs, Tubes and Cleats.

Group 8 — **Commercial, Industrial and Street Lighting Equipment**
Pages 423 to 520
Metal Reflectors, Residence Fixtures, Ornamental Street Posts, Mazda and Carbon Lamps, Flashlights.

Group 9 — **Fans, Household Devices, Heating Appliances and Ranges**
Pages 521 to 547
Household Fans, Ventilating Equipment, Vacuum Cleaners, Sew Motors, Westinghouse Appliances and Ranges.

Group 10 — **Useful Information**
Pages 548 to 560
Engineering Data and Tables.

RUBBER COVERED WIRE

National Electrical Code Standard
For 600 Volts and Under

SOLID CONDUCTOR

Single Braid

Size B.&S.	Capacity Circular Mils	Carrying Capacity Amperes	Wall of Rubber	Diameter Over All	Wt. Per 1000 Ft.
14	4096	12	3-64	13-64	29
12	6561	17	3-64	7-32	39
10	10404	24	3-64	15-64	53
8	16384	33	3-64	17-64	78
6	26244	46	1-16	5-16	119
4	41616	65	1-16	25-64	180
2	66564	90	1-16	29-64	264

Double Braid

14	4096	12	3-64	4-16	32
12	6561	17	3-64	9-32	42
10	10404	24	3-64	19-64	58
8	16384	33	3-64	11-32	85
6	26244	46	1-16	25-64	126
4	41616	65	1-16	15-32	190
2	66564	90	1-16	9-16	275

STRANDED CONDUCTOR

Single Braid

Size B.&S.	Cap. Cir. Mils	Carrying Capacity Amperes	Stranding	Wall of Rubber	Diam. Over All	Wt Per 1000 Ft.
14	4096	12	7x.024	3-64	13-64	31
12	6561	17	7x.031	3-64	7-32	42
10	10404	24	7x.039	3-64	1-4	60
8	16384	33	7x.048	3-64	17-64	80
6	26244	46	7x.061	1-16	11-32	126
4	41616	65	7x.077	1-16	26-64	187
2	66564	90	7x.098	1-16	29-64	276
1	83521	107	19x.066	5-64	1-2	355

Double Braid

14	4096	12	7x.024	3-64	15-64	36
12	6561	17	7x.031	3-64	1-4	47
10	10404	24	7x.039	3-64	17-64	66
8	16384	33	7x.048	3-64	5-16	88
6	26244	46	7x.061	1-16	25-64	131
4	41616	65	7x.077	1-16	27-64	190
2	66564	90	7x.098	1-16	31-64	289
1	83521	107	19x.066	5-64	43-64	369
0	105625	127	19x.074	5-64	47-65	463
00	133225	150	19x.083	5-64	13-16	543
000	168100	177	19x.094	5-64	7-8	678
0000	211600	210	19x.105	5-64	15-16	824

RUBBER COVERED WIRE

National Electrical Code Standard
For 600 Volts and Under

DUPLEX CONDUCTORS

Solid

Size B.&S.	Capacity Circular Mils	Carrying Capacity Amperes	Wall of Rubber	Diameter Over All	Wt. Per 1000 Ft.
14	4096	12	3/64	13-32	66
12	6561	17	3/64	15-32	87
10	10404	24	3/64	16-32	115
8	16384	33	3/64	18-32	168

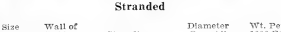
Stranded

Size B.&S.	Capacity Circular Mils	Carrying Capacity Amperes	Wall of Rubber	Diameter Over All	Wt. Per 1000 Ft.
14	4096	12	3/64	18-32	73
12	6561	17	3/64	21-32	103
10	10404	24	3/64	24-32	130
8	16384	33	3/64	26-32	205

FIXTURE WIRE

Solid

Size B.&S.	Wall of Rubber	Stranding	Diameter Over All	Wt. Per 1000 Ft.
18	2/64	16 No. 30	7-64	10
18	3/64	16 No. 30	9-64	13
16	3/64	26 No. 30	10-64	18



Stranded

Size B.&S.	Wall of Rubber	Stranding	Diameter Over All	Wt. Per 1000 Ft.
18	2/64	16 No. 30	8-64	11
18	3/64	16 No. 30	10-64	14
16	3/64	26 No. 30	11-64	19

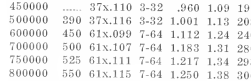
RUBBER COVERED CABLE

National Electrical Code Standard
For 600 Volts and Under

CIRCULAR MILS CABLE
Double Braid

Circular Mils.	Carrying Cap. Amp.	Stranding	Wall of Rubber	Diam. Over Rubber	Diam. Over All	Wt. Per 1000 Ft.	Reel Diam. In
250000	235	37x.082	3-32	.763	.....	1150	42
300000	270	37x.090	3-32	.818	.....	1340	42
350000	.....	37x.097	3-32	.867	.....	1540	42
400000	330	37x.104	3-32	.912	.....	1700	42
450000	.....	37x.110	3-32	.960	1.09	1930	42
500000	390	37x.116	3-32	1.001	1.13	2080	42
600000	450	61x.099	7-64	1.112	1.24	2400	42
700000	500	61x.107	7-64	1.183	1.31	2800	42
750000	525	61x.111	7-64	1.217	1.34	2930	42
800000	550	61x.115	7-64	1.250	1.38	3060	42
900000	600	61x.121	7-64	1.312	1.44	3870	42
1000000	650	61x.128	7-64	1.371	1.50	4120	42
1250000	750	91x.117	4-32	1.539	1.67	4678	....
1500000	850	91x.128	4-32	1.663	1.79	5539	....
1750000	950	91x.139	4-32	1.780	1.90	6394	....
2000000	1050	91x.148	4-32	1.853	2.01	7246	....

SWITCHBOARD CABLE—FLEXIBLE



Single Braid

Size B. & S.	Cir. Mils	Carrying Capacity Amperes	Stranding	Wall of Rubber	Diam. Over All	Wt Per 1000 Ft.
14	4107	12	13 x No. 25	4/64	9-32	38
12	6530	17	21 x No. 25	4/64	10-32	48
10	10382	24	21 x No. 23	4/64	23-64	65
8	16510	33	49 x No. 25	4/64	25-64	94
6	26250	46	49 x No. 23	5/64	14-32	149
5	33102	54	49 x No. 22	5/64	31-64	175
4	41473	65	49 x No. 21	5/64	17-32	209
3	52634	76	133 x No. 24	5/64	37-64	252
2	66373	90	133 x No. 33	5/64	20-32	306

Double Braid

14	4107	12	13 x No. 25	5/64	20-64	40
12	6530	17	21 x No. 25	5/64	11-32	56
10	10382	24	21 x No. 23	5/64	25-64	74
8	16510	33	49 x No. 25	5/64	27-64	107
6	26250	46	49 x No. 23	5/64	15-32	166
5	33102	54	49 x No. 22	5/64	33-64	194
4	41473	65	49 x No. 21	5/64	9-16	230
3	52634	76	133 x No. 24	5/64	39-64	275
2	66373	90	133 x No. 33	5/64	21-32	333

RUBBER COVERED TELEPHONE WIRES

Single Conductor, Plain Rubber

Single Conductor, Braided

Twisted Pair, Plain Rubber

Twisted Pair, Braided

Size B. & S.	Diam. Over Rubber. Inches	Size B. & S.	Diam. Over Rubber, Inches
14	11/64	18	7/64
14	3/32	19	7/64
16	3/32	19	3/32
16	5/64	20	3/32
16	1/8	22	3/32
18	1/8	...	...

Prices quoted for saturated or finished braid of any color. Single conductors are one-half the price of twisted pair. Triple conductors are one and one-half times the price of twisted pair. Four conductors are twice the price of twisted pair. No deductions will be made for lighter insulation.

COPPER CLAD TWISTED PAIR TELEPHONE WIRE

Copper clad rubber insulated, twisted pair drop wire has very largely replaced the use of No. 14 copper drop wire, having approximately the same breaking strength as the latter, and having ample conductivity for telephone requirements. It costs less, is smaller and weighs less than copper wire, and its life is longer.

Size B. & S.	Diam. Over Rubber, In.	Wt, Lbs. Per 1000 Feet
17	7/64	40

No raised thread tracer

COPPER TELEPHONE DUPLEX DROP WIRE

This wire is for outside use only. The wires are insulated with two reversed winds of cotton yarn, covered with a close protecting braid, all thoroughly saturated with black weatherproof compound, and finished with a hard, lasting polish. The conductors are then twisted together.

Size B. & S.	Approx. Wt. Per 1000 Feet	200 Lbs. in Cases — No. Coils	Lbs. Each
14	53	12	17
16	32	12	17
18	23	12	17
19	20	12	17

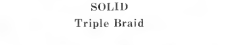
PLAIN TWISTED POT HEAD WIRE

Size B. & S.	Diameter Over All	Wt. Per 1000 Feet
19	3/32	20
20	11/64	19
22	1/8	18

Both conductors black rubber, fin on one conductor.

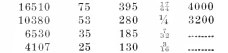
WEATHERPROOF WIRE

SOLID
Triple Braid



Size B & S. Gauge	Capacity Circular Mils	Approximate Wt., Lbs. Per 1000 Ft.	Per Mile	Approx Diam In Over Ins.	Reels Approx. Length Feet	Carrying Cap Amps.
0000	211600	767	4050	3/8	2500	225
000	167800	629	3320	11/32	3000	275
00	133100	502	2650	5/16	3500	225
0	105500	407	2150	9/32	4000	200
					Coils	
1	83690	316	1670	1/4	800	150
2	66370	260	1370	15/64	1000	125
3	52640	199	1050	13/64	1250	100
4	41740	164	865	11/64	1600	90
5	33100	135	710	9/64	2000	80
6	26250	112	590	7/32	2500	70
8	16510	75	395	5/32	4000	50
10	10380	53	280	1/4	3200	30
12	6530	35	185	5/32	.....	25
14	4107	25	130	1/8	.....	20
16	2048	14	75	5/32	.....	10
18	1624	11	58	1/8	.....	5

STRANDED
Triple Braid

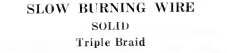


Size B & S. Gauge	Capacity Circular Mils	Approximate Wt., Lbs. Per 1000 Ft.	Per Mile	Approx. Diam In. Over Ins.	Reels Approx. Length Feet	Carrying Cap Amps.
.....	1000000	3675	19400	1 31/32	900	1000
.....	900000	3330	17600	1 27/32	1000	420
.....	800000	3000	15800	1 7/16	1000	840
.....	700000	2650	14000	1 13/32	1200	760
.....	600000	2235	11800	1 21/32	1500	680
.....	500000	1900	10000	1 3/4	1800	600
.....	450000	1725	9100	1 5/8	1300	550
.....	400000	1550	8200	1 17/32	1500	500
.....	350000	1345	7100	1	1800	450
.....	300000	1175	6200	31/32	2000	400
.....	250000	895	5200	29/32	2500	350
0000	211600	800	4200	27/32	2500	325
000	167800	653	3450	25/32	3000	275
00	133100	522	2760	23/32	3500	250
0	105500	424	2240	11/16	4000	200
					Coils	
1	83690	328	1735	21/32	800	150
2	66370	270	1425	19/32	1000	125
3	52640	206	1090	17/32	1200	100
4	41740	170	900	15/32	1500	90
5	33100	140	740	13/32	2000	80
6	26250	115	610	11/32	2500	70
8	16510	78	410	9/32	3500	50

This wire has three close braids of cotton, all saturated with weatherproof compound. The outer braid is smoothly polished.

SLOW BURNING WIRE

SOLID
Triple Braid



Size B & S. Gauge	Capacity Circular Mils	Approximate Wt., Lbs. Per 1000 Ft.	Per Mile	Approx. Diam. In Over Ins.	Reels Approx. Length Feet	Carrying Cap. Amps.
0000	211600	925	4890	3/8	2500	325
000	167800	760	4020	11/32	3000	275
00	133100	600	3170	21/64	3500	225
0	105500	495	2610	5/16	4000	200
					Coils	
1	83690	365	1930	19/64	800	150
2	66370	320	1690	9/32	1000	125
3	52640	270	1425	17/64	1250	100
4	41740	220	1160	15/64	1600	90
5	33100	190	1000	13/64	2000	80
6	26250	160	845	11/64	2500	70
8	16510	100	530	7/64	.....	50
10	10380	80	420	1/4	.....	30
12	6530	55	290	5/32	.....	25
14	4107	40	210	9/64	.....	20
16	2583	18	95	5/32	.....	10
18	1624	14	75	1/8	.....	5

STRANDED
Triple Braid

Size B. & S. Gauge	Capacity Circular Mils	Approximate Wt., Lbs. Per 1000 Ft.	Per Mile	Approx. Diam. In. Over Ins.	Reels Approx. Length Feet	Carrying Cap. Amps
.....	1000000	3980	21000	1 23/32	900	1000
.....	900000	3640	19200	1 11/16	1000	920
.....	800000	3280	17300	1 21/32	1000	840
.....	700000	2920	15400	1 5/8	1200	760
.....	600000	2460	13000	1 17/32	1500	680
.....	500000	2080	11000	1 13/32	1800	600
.....	450000	1900	10000	1 7/16	1300	550
.....	400000	1700	9000	1 11/32	1500	500
.....	350000	1500	7900	1 5/32	1800	450
.....	300000	1310	6900	1 1/32	2000	400
.....	250000	1120	5900	31/32	2500	350
0000	211600	960	5070	29/32	2500	325
000	167800	785	4150	27/32	3000	275
00	133100	625	3300	25/32	3500	225
0	105500	510	2700	23/32	4000	200
					Coils	
1	83690	380	2000	11/16	800	150
2	66370	335	1770	21/32	1000	125
3	52640	280	1480	19/32	1200	100
4	41740	230	1220	17/32	1500	90
5	33100	195	1030	15/32	2000	80
6	26250	165	870	13/32	2500	70
8	16510	105	555	9/32	3500	50

This wire is insulated with three close cotton braids, all thoroughly saturated with a white fireproof compound.

The compound used on the outer braid becomes very hard, but the wire still retains its flexibility. As this insulation does not deteriorate in a continued high temperature it is especially suitable for engine and boiler rooms, furnaces and foundries.

BARE COPPER WIRE

ANNEALED AND HARD DRAWN

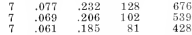
Stranded

The table given below contains standard concentric strands, but a cable can be composed of either of greater or lesser number of wires, should it be so ordered. Concentric stranding is recommended, as it gives the smallest diameter of conductor, for any given capacity.

Capacity Circular Mils	Style of Stranding No. Wires	Diam. Each Strands, Inches	Weight, Lbs. Per 1000 Ft.	Per Mile	Size B. & S.	Capacity Circular Mils	Style of Stranding No. Wires	Diam. Each Strands, Inches	Weight, Lbs. Per 1000 Ft.	Per Mile
2000000	91	.148	1.630	6100	32208	300000	37	.090	.630	915	4831
1750000	91	.139	1.530	5338	28185	250000	37	.082	.575	762	4026
1500000	61	.157	1.405	4575	24156	0000	19	.105	.530	645	4305
1250000	61	.142	1.280	3812	20130	000	19	.094	.470	513	2709
1000000	61	.128	1.152	3050	16104	00	19	.084	.420	406	2044
950000	61	.125	1.125	2898	15299	0	19	.075	.375	322	1700
900000	61	.121	1.092	2745	14494	1	7	.1939	.328	258	1363
850000	61	.118	1.062	2593	13688	2	7	.1728	.300	204	1077
800000	61	.115	1.035	2440	12883	3	7	.1539	.260	162	855
750000	61	.111	1.000	2288	12078	4	7	.1372	.232	128	676
700000	61	.107	.963	2135	11273	5	7	.1223	.206	102	539
650000	61	.103	.927	1983	10468	6	7	.1090	.161	81	428
600000	61	.099	.891	1830	9662	8	7	.0854	.150	51	269
550000	61	.093	.855	1678	8857	10	7	.0681	.112	32	169
500000	37	.116	.819	1525	8052	12	7	.0540	.031	.088	20	107
450000	37	.110	.770	1373	7247	14	7	.0431	.024	.069	13	68
400000	37	.104	.728	1220	6442	16	7	.0343	.019	.058	8	42
350000	37	.097	.679	1068	5636	18	7	.0272	.015	.045	5	26

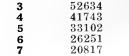
Solid

All bare copper wires are regularly drawn to B. & S. Gage annealed and hard drawn and all orders will be filled accordingly, unless otherwise specified.



Size B. & S.	Capacity Circular Mils	Diam. Inches	Weight, Lbs. Per 1000 Ft.	Per Mile	Size B. & S.	Capacity Circular Mils	Diam. Inches	Weight, Lbs. Per 1000 Ft.	Per Mile
0000	211600	.460	639	3376	9	13094	.1144	40	209
000	167805	.4096	507	2677	10	10382	.1019	31	166
00	133079	.3648	402	2123	11	8234	.0907	25	131
0	105538	.3249	319	1684	12	6530	.0808	20	104
1	83694	.2893	253	1355	13	5178	.07196	16	83
2	66373	.2576	201	1059	14	4107	.06408	13	66
3	52634	.2294	159	840	15	3257	.05707	10	52
4	41743	.2043	126	666	16	2583	.05082	8	41
5	33102	.1819	100	528	17	2048	.04526	6	33
6	26251	.1620	79	419	18	1624	.04030	5	26
7	20817	.1443	63	332	19	1228	.03589	4	21
8	16510	.1285	50	263	20	1022	.03196	3	16

COPPER TROLLEY WIRE



Round

Trolley wire generally is made of hard drawn copper in three shapes, round, grooved and figure 8. Though seldom called upon to make trolley wire larger than 4/0 or smaller than 1/0 American Wire Gauge (B. & S.), we are prepared to make other sizes. Where traffic conditions are severe and wire is subjected to extremely hard usage, we recommend our Special Process trolley wire. The various styles and sizes are shown dimensioned below:

Grooved

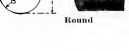


Figure 8

Dimensions of Hard-Drawn Copper Trolley Wire

Round—(Section of Trolley Wire)

American Wire Gauge (B. & S.)	Sectional Area in Cir. Mils	Approximate Dimensions A	B	C	D	E	F	G	R
0	105,600	.325	.1625	.....	.....	.....	.....	.....	.....
00	133,200	.365	.1825	.....	.....	.....	.....	.....	.....
000	168,100	.410	.205	.....	.....	.....	.....	.....	.....
0000	211,600	.460	.230	.....	.....	.....	.....	.....	.....

Grooved—"American Standard"—(Section of Trolley Wire)

00	133,200	.392	.196	.03125	.20	78°	27°	51°	.015
000	168,100	.430	.215	.04688	.22	78°	27°	51°	.015
0000	211,600	.482	.241	.0625	.25	78°	27°	51°	.015

Figure 8—(Section of Trolley Wire)

00	133,200	.480	.352	.108	.196	.....	.....	.....	.....
000	168,100	.540	.400	.130	.222	.....	.....	.....	.....
0000	211,600	.600	.450	.150	.250	.....	.....	.....	.....

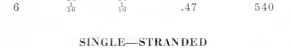
LEAD ENCASED CABLES, RUBBER INSULATED

National Electric Code Standard
600 Volts and Under

SINGLE—SOLID

Size B. & S.	Wall of Rubber, In.	Wall of Lead, In.	Diameter Over All, In.	Weight Per 1000 Feet
16	1/64	1/64	.25	180
14	1/64	1/64	.28	215
12	1/64	1/64	.30	240
10	1/64	1/64	.33	285
8	1/64	1/64	.35	325
6	1/64	1/64	.47	540

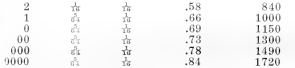
SINGLE—STRANDED



Size B. & S.	Wall of Rubber, In.	Wall of Lead, In.	Diameter Over All, In.	Weight Per 1000 Feet
14	1/64	1/64	.30	235
12	1/64	1/64	.31	260
10	1/64	1/64	.34	300
8	1/64	1/64	.38	340
6	1/32	1/32	.47	580
5	1/32	1/32	.50	620
4	1/32	1/32	.52	690
3	1/32	1/32	.55	770
2	1/32	1/32	.58	840
1	1/64	1/32	.66	1000
0	1/64	1/32	.69	1150
00	1/64	1/32	.73	1300
000	1/64	1/32	.78	1490
9000	1/64	1/32	.84	1720

SINGLE-CONDUCTOR—STRANDED

Circular Mil Sizes

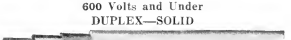


Size B. & S.	Wall of Rubber, In.	Wall of Lead, In.	Diameter Over All, In.	Weight Per 1000 Feet
250000	3/64	1/64	.95	2230
300000	3/64	1/64	1.02	2840
350000	3/64	1/64	1.08	2750
400000	3/64	1/64	1.11	3000
450000	3/64	1/64	1.19	3230
500000	3/64	1/64	1.20	3480
600000	1/64	3/64	1.34	4385
700000	1/64	3/64	1.41	4880
750000	1/64	3/64	1.44	5110
800000	1/64	3/64	1.47	5345
900000	1/64	3/64	1.53	5810
1000000	1/64	3/64	1.59	6280
1250000	4/32	1/64	1.78	7960
1500000	4/32	1/64	1.91	9100
1750000	4/32	1/64	2.03	10225
2000000	4/32	1/64	2.12	11300

LEAD ENCASED CABLES, RUBBER INSULATED

National Electric Code Standard
600 Volts and Under

DUPLEX—SOLID

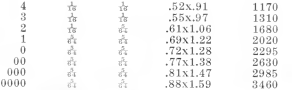


Size B. & S.	Wall of Rubber, In.	Wall of Lead, In.	Diameter Over All, In.	Weight Per 1000 Feet
16	1/64	1/64	.25X.41	280
14	1/64	1/64	.28X.47	350
12	1/64	1/64	.30X.51	390
10	1/64	1/64	.33X.57	465
8	1/64	1/32	.39X.66	670
6	1/32	1/32	.45X.78	880

DUPLEX—STRANDED

Size B. & S.	Wall of Rubber, In.	Wall of Lead, In.	Diameter Over All, In.	Weight Per 1000 Feet
12	1/64	1/64	.31X.53	420
10	1/64	1/64	.34X.59	495
8	1/64	1/32	.41X.69	715
6	1/32	1/32	.47X.81	960
5	1/32	1/32	.50X.89	1045
4	1/32	1/32	.52X.91	1170
3	1/32	1/32	.55X.97	1310
2	1/32	1/64	.61X1.06	1680
1	1/64	1/64	.69X1.22	2020
0	1/64	1/64	.72X1.28	2295
00	1/64	1/64	.77X1.38	2630
000	1/64	1/64	.81X1.47	2985
0000	1/64	1/64	.88X1.59	3460

THREE CONDUCTOR—SOLID



Size B. & S.	Wall of Rubber, In.	Wall of Lead, In.	Diameter Over All, In.	Weight Per 1000 Feet
14	1/64	1/32	.56	660
12	1/64	1/32	.59	730
10	1/64	1/32	.66	850
8	1/64	1/64	.73	1170
6	1/32	1/64	.91	1540

THREE CONDUCTOR—STRANDED

Size B. & S.	Wall of Rubber, In.	Wall of Lead, In.	Diameter Over All, In.	Weight Per 1000 Feet
12	1/64	1/32	.63	775
10	1/64	1/32	.70	880
8	1/64	1/64	.77	1240
6	1/32	1/64	.93	1630
4	1/32	1/64	1.03	1990
2	1/32	1/64	1.16	2480
1	1/64	3/64	1.29	3078
0	1/64	3/64	1.39	3531
00	1/64	3/64	1.47	4029
000	1/64	3/64	1.57	4618
0000	1/64	3/64	1.69	5264

SAFETY STEEL TAPED CABLES

Steel taped cables are the ideal means of underground transmission without the use of ducts or other forms of protection. The special construction guards against all disturbing elements, maintains efficiency and reliability of service and reduces the cost of installation. Nine insulating and protecting coverings surround the conductors.

The use of these cables is not confined to ornamental street lighting but is equally suitable for any underground transmission, and is extensively used in street railway work, large industrial plants, mines, etc.

600 VOLTS, SOLID

Size B&S	Thickness Rubber In.	Single-Conductor Approx. Wt. O. D. In.	Lbs. 1000 Ft.	Two-Conductor Approx. Wt. O. D. In.	Lbs. 1000 Ft.	Three-Conductor Approx. Wt. O. D. In.	Lbs. 1000 Ft.
12	1/16	.687	1100	.970	1450	1.030	1900
10	1/16	.720	1200	1.000	1650	1.062	2200
8	1/16	.750	1300	1.062	1800	1.125	2300
6	1/16	.782	1400	1.125	2050	1.187	2650

600 VOLTS, STRANDED

4	1/16	.875	1700	1.312	2500	1.375	3600
2	1/16	.906	1900	1.437	2900	1.500	4200
1	5/64	1.000	2100	1.625	3300	1.687	5100
0	5/64	1.030	2300	1.687	3800	1.812	5800
00	5/64	1.062	2500	1.750	4100	1.906	6400
000	5/64	1.125	2700	1.875	4600	2.030	7100
0000	5/64	1.187	3000	2.000	5100	2.156	8800

2400 VOLTS, SOLID

12	1/8	.781	1500	1.188	2300	1.281	3100
10	1/8	.813	1600	1.218	2500	1.328	3300
8	1/8	.828	1700	1.250	2600	1.375	3400
6	1/8	.859	1800	1.313	2800	1.453	3700

2400 VOLTS, STRANDED

4	1/8	.938	2000	1.469	3200	1.609	4600
2	1/8	1.015	2200	1.625	4000	1,734	5700
1	1/8	1.047	2300	1.688	4100	1.828	6100
0	1/8	1.094	2500	1.781	4400	1.921	6700
00	1/8	1.140	2700	1.875	5000	2.046	7500
000	1/8	1.218	3100	1.969	5700	2.156	8500
0000	1/8	1.281	3700	2.094	6600	2.281	9500

FOR SERIES ARC CIRCUITS

5000 Volts, Solid

8	11/64	.969	1950	1.281	2900	.....	.....
6	11/64	1.063	2000	1.438	2900	.....	.....

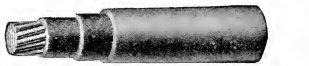
5000 Volts, Stranded

4	11/64	1.094	2200	1.594	3600	.....	.....

Prices quoted on application.
Advise delivery point and quantity desired.

VARNISHED CAMBRIC INSULATED WIRES AND CABLES

SINGLE CONDUCTOR—LEADED AND BRAIDED



Stranded Conductor

Size B&S Gauge	Thickness Ins.	Thickness Lead In.	Approximate Diameter Leaded	Braided	Approximate Wt., Lbs. 1000 Ft. Leaded	Braided
6	1/16	5/64	.40	.40	386	151
4	1/16	5/64	.45	.45	490	202
2	1/16	1/16	.54	.54	725	279
1	5/64	1/16	.61	.61	880	362
0	5/64	1/16	.66	.66	1015	448
00	5/64	1/16	.70	.70	1120	534
000	5/64	1/16	.75	.75	1301	642
0000	5/64	5/64	.84	.84	1690	778
250000	3/32	3/32	.95	.95	2267	1034
300000	3/32	3/32	1.01	1.01	2520	1220
350000	3/32	3/32	1.06	1.06	2780	1409
400000	3/32	3/32	1.11	1.11	2994	1556
500000	3/32	3/32	1.19	1.19	3473	1893
600000	1/8	1/8	1.30	1.30	3999	2281
700000	1/8	1/8	1.37	1.37	4388	2562
750000	1/8	1/8	1.41	1.41	4589	2731
800000	1/8	1/8	1.44	1.44	4794	2901
900000	1/8	1/8	1.50	1.50	5241	3245
1000000	1/8	1/8	1.56	1.56	5656	3589
1250000	5/32	1/8	1.76	1.76	7185	4453
1500000	5/32	1/8	1.92	1.92	8700	5297
1750000	5/32	1/8	2.03	2.03	9793	6157
2000000	5/32	1/8	2.14	2.14	10835	7010

For working pressure not exceeding 1000 volts.

Specifications, diameters and weights for solid conductor approximate same as above.

Prices on the above will be furnished on application. Also specifications and prices for cables exceeding 1000 volts.

THREE CONDUCTOR—LEADED AND BRAIDED

Stranded Conductor

6	1/16-3/32	1/8	.824	.824	1245	538
4	1/16-5/64	5/64	.959	.959	1820	760
2	1/16-5/64	5/64	1.085	1.085	2290	1089
1	5/64-5/64	3/32	1.279	1.279	3066	1384
0	5/64-5/64	3/32	1.357	1.357	3446	1660
00	5/64-5/64	3/32	1.456	1.456	3933	2003
000	5/64-5/64	1/4	1.566	1.566	4528	2416
0000	5/64-5/64	5/64	1.723	1.723	5642	2955
250000	3/32-5/64	5/64	1.891	1.891	6470	3537
300000	3/32-5/64	5/64	2.023	2.023	7296	4155
350000	3/32-3/32	1/8	2.150	2.150	8595	4770
400000	3/32-3/32	1/8	2.253	2.253	9347	5288
500000	3/32-3/32	1/8	2.438	2.438	10870	6483

For working pressure not exceeding 1000 volts.

Note.—Under thickness insulation the first fraction is thickness of insulation on each conductor; the second fraction is thickness of insulation over all.

Prices will be furnished upon application, also specifications and prices for cables exceeding 1000 volts.

RUBBER CLAD CABLES

WELDING AND LOCOMOTIVE GATHERING CABLES

WELDING MACHINE CABLES

Single Conductor

Size Wire (B.&S.)	No. of Wires	Wt. Per 1000 Ft.	Packing Ft.	Packing Reel No	Outside Diam. In.	Tare Wt Per 1000 Ft
2–0	259	675	1000	467	.813	336
1–0	259	569	1000	466	.763	127
1	259	484	1000	466	.722	127
2	259	385	1000	466	.649	127
3	259	327	1000	466	.613	127
4	259	279	1000	466	.580	127

LOCOMOTIVE GATHERING CABLES

2	133	404	1000	466	.680	127
*2	See	411	1000	466	.683	127
*3	Below	348	1000	466	.648	127
*4	*	292	1000	466	.606	127

Standard construction (with steel reinforced conductor).

No. 2 A. W. Ga.:—Seven tinned steel Monitor wires, each .027 inch, around which are laid twelve tinned copper wires each .027 inch forming a core. Around this core are laid seven strands (seven wires to the strand, each .034 inch) of tinned copper.

No. 3 A. W. Ga.:—Seven tinned steel Monitor wires, each .0255 inch, around which are laid twelve tinned copper wires, each .0255 inch, forming a core. Around this core are laid seven strands (seven wires to the strand, each .0293 inch) of tinned copper.

No. 4 A. W. Ga.:—Seven tinned steel Monitor wires, each .021 inch, around which are laid twelve tinned copper wires ,each .021 inch, forming a core. Around this core are laid seven strands (seven wires to the strand, each .0261 inch) of tinned copper.

*Outer conductors of concentric cables are made up of 37 wires.

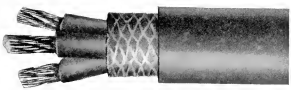
RUBBER CLAD CABLES

RUBBER-CLAD MINING MACHINE CABLES

Two-Conductor Round

Size Wire (B.&S.)	No. of Wires	Wt. Per 1000 Ft.	Packing Ft.	Packing Reel No.	Outside Diam. In.	Tare Wt. Per 1000 Ft.
1	133	1227	1000	468	1.338	465
2	133	986	1000	468	1.192	465
3	133	844	1000	468	1.120	465
4	133	729	1000	468	1.056	465
5	49	629	1000	467	.990	336
6	49	552	1000	467	.938	336
8	49	382	1000	466	.792	127

Three-Conductor Round



1	133	1597	1000	468	1.415	465
2	133	1267	1000	468	1.258	465
3	133	1076	1000	468	1.181	465
4	133	920	1000	468	1.112	465
5	49	786	1000	467	1.041	336
6	49	682	1000	467	.985	336
8	49	475	1000	467	.832	336

Duplex Concentric

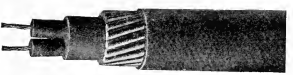
1	133	993	1000	467	1.027	336
2	133	816	1000	467	.944	336
3	133	699	1000	467	.898	336
4	133	605	1000	467	.858	336
5	49	503	1000	466	.787	127
6	49	440	1000	466	.754	127
8	49	302	1000	466	.639	127

WIRE ARMORED CABLES

Single Conductor Rubber Insulated Lead Covered and Armored

These cables are for street railways, telegraph and telephone companies and electric light and power plants. They are used for crossing rivers, bays, ponds, or lakes. We are prepared to furnish this class of material to the most exacting specifications.

Full information as to the purpose for which cable is to be used, location, depth of water and working conditions, should accompany requests for prices.



Two Conductor Rubber Insulated and Armored. (No Lead is Used and Armor is Jute Wrapped)

SPECIAL RUBBER INSULATED CORDS AND CABLES

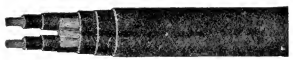
DECK CABLES

Deck cable consists of two conductors stranded, rubber insulated, braided, twisted together with jute filler, and finished with a belt of rubber and a weatherproof braid.

Size B. & S.	No. of Wires in Strand	Thickness Insulation on Each Conductor	Over All Dimensions	Weight Per 1000 Ft.
18	16 No. 30	1/32	14-32	90
16	26 No. 30	1/32	14-32	100
14	41 No. 30	3/64	19-32	130
12	65 No. 30	3/64	20-32	170
10	104 No. 30	3/64	22-32	220

PACKING HOUSE CORD

Packing house cord consists of two conductors stranded, rubber insulated, braided, twisted together with jute filler and finished with two weatherproof braids.



Size B. & S.	No. of Wires in Strand	Thickness Insulation on Each Conductor	Over All Dimensions	Weight Per 1000 Ft.
18	16 No. 30	1/32	13-32	55
16	26 No. 30	1/32	14-32	70
14	41 No. 30	3/64	17-32	120
12	65 No. 30	3/64	18-32	150
10	104 No. 30	3/64	20-32	190

THEATER OR STAGE CABLE

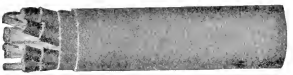
Theater or stage cable consists of two stranded conductors, flexible cotton wrapped, rubber insulated, twisted together with jute filler, and finished with two weatherproof braids.

Size B. & S.	No. of Wires in Strand	Thickness Insulation on Each Conductor	Over All Dimensions	Weight Per 1000 Ft.
16	26 No. 30	1/32	14-32	55
14	41 No. 30	3/64	17-32	120
12	65 No. 30	3/64	18-32	150
10	104 No. 30	3/64	20-32	190
8	49 No. 25	3/64	24-32	255
6	49 No. 23	1/16	28-32	365
5	49 No. 22	1/16	30-32	450
4	49 No. 21	1/16	32-32	525
3	133 No. 24	1/16	34-32	625
2	133 No. 23	1/16	36-32	750

SPECIAL RUBBER INSULATED CABLES

BORDER LIGHT CABLES

Border Light Cable consists of two or more stranded conductors, flexible cotton wrapped, rubber insulated, braided, twisted together with jute filler, and finished with two weatherproof braids.



B. & S. Gauge	No. Cond.	No. of Wires in Strand	Thickness Insulation on Each Cond.
12	3	65 No. 30	3/64
12	4	65 No. 30	3/64
12	5	65 No. 30	3/64
12	6	65 No. 30	3/64
14	3	41 No. 30	3/64
14	4	41 No. 30	3/64
14	5	41 No. 30	3/64
14	6	41 No. 30	3/64

ELEVATOR LIGHTING CABLES

Elevator Lighting Cables consist of two extra flexible conductors, each insulated with a seamless wall of rubber, braided, twisted and laid up round with jute. The cables are then finished with a belt of seamless rubber and weatherproof braid.

Size B. & S.	Thickness Insulation on Each Cond.	Size B. & S.	Thickness Insulation on Each Cond.
14	3/64	12	3/64

ELEVATOR CONTROL CABLES WITH STEEL SUPPORTING STRAND

Consists of extra flexible conductors, each insulated with a seamless wall of rubber braided in color coded cotton, cabled with a steel supporting strand and braided with two W. P. Cotton Braids.

B. & S. Gauge	No. Cond.	Thickness Insulation on Each Cond.
16	4	1/32
16	5	1/32
16	6	1/32
16	7	1/32
16	8	1/32
16	9	1/32
16	10	1/32

AMERICORE RUBBER CLAD CORDS AND CABLES

RUBBER-CLAD PORTABLE CORDS

Cords and cables of this construction are designed for use where the conditions of operation are most severe. They are practically proof against the deteriorating effects of oils, acids, etc., and their light weight and smooth, clean outer surface prevents them from accumulating grease and dirt and makes them easy to handle.

Manufactured as portable cords, locomotive gathering cables, mining machine and welding cables.

The portable cord constructions are made with regular lamp cord strand conductor, cotton wound, insulated with high grade 30% rubber compound ——two or three such conductors, as desired, are twisted together and covered with 60% rubber compound (no braid is applied on the outside).

Locomotive gathering and welding machine cables are of the single conductor type. To give tensile strength to the locomotive cables, the conductor is made with a steel reinforced center. Seven tinned steel wires are assembled, around which are laid twelve tinned copper wires, forming a core, around this core are laid seven strands (seven wires to the strand) of tinned copper to the desired capacity, and finish of 40% and 60% rubber compound completes the assembly.

Mining machine cables are laid up along the same general lines as portable cords and locomotive cables. The standard constructions being the same as for braided mining machine cables, viz: two-conductor round, three-conductor, and duplex concentric.

For full details refer to following tables:

TWO-CONDUCTOR

Wire (B.&S.)	Wt. Per 1000 Ft.	Packing Ft.	Packing Coils	Approx. Outside Diam.
10	269	500	Coils	.640
12	208	500	Coils	.578
14	168	500	Coils	.531
16	105	500	Coils	.422
18	86	500	Coils	.391

THREE-CONDUCTOR

10	327	500	Coils	.688
12	248	500	Coils	.609
14	201	500	Coils	.563
16	128	500	Coils	.455
18	98	500	Coils	.406

AMERICORE HEATER CORD

SPECIFICATIONS

Standard A

Conductor made up of flexible A. & C. copper strand braided, covered with a cotton wind, insulated with $\frac{1}{64}$ inch Americore Rubber and one asbestos braid. Two such conductors, one of which contains red tracer twisted together and covered over all with one hard slate grey cotton braid.

Standard B

Conductor made up of flexible A. & C. copper strand braided, covered with a cotton wind, insulated with $\frac{1}{64}$ inch Americore Rubber and one asbestos braid, one hard slate grey cotton braid. Two such conductors twisted together, one of which contains red tracer.

Standard C

Conductor made up of flexible A. & C. copper strand braided, covered with a cotton wind, insulated with $\frac{1}{64}$ inch Americore Rubber and one asbestos wind. Two such conductors, one of which contains red tracer twisted together and covered over all with one hard slate grey cotton braid.

Standard D

Conductor made up of flexible A. & C. copper strand braided, covered with a cotton wind, insulated with $\frac{1}{64}$ inch Americore Rubber, one asbestos wind, one hard slate grey cotton braid. Two such conductors twisted together, one of which contains red tracer.

Standard E

Conductor made up of flexible A. & C. copper strand bunched, covered with a cotton wind, insulated with $\frac{1}{64}$ inch Americore Rubber and one asbestos wind. Two such conductors, one of which contains red tracer, twisted together and covered over all with one hard slate grey braid.

Standard F

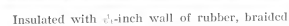
Conductor made up of flexible A. & C. copper strand bunched, covered with a cotton wind, insulated with $\frac{1}{64}$ inch Americore Rubber, one asbestos wind, one hard slate grey cotton braid. Two such conductors twisted together, one of which contains red tracer.

Size Wire (B.&S.)	Wt. Per 1000 Ft.	Approx. Diam. in in.	Size Wire (B.&S.)	Wt. Per 1000 Ft.	Approx. Diam. in in.
		Standard A			
14	50	.391	17	35	.355
16	38	.359	18	31	.345
		Standard B			
14	51	.432	17	36	.346
16	39	.400	18	32	.386
		Standard C			
14	47	.341	17	31	.305
16	34	.309	18	27	.295
		Standard D			
14	48	.382	17	33	.346
16	36	.350	18	29	.336
		Standard E			
12	73	.407	17	31	.309
14	51	.349	18	27	.289
16	36	.315	...	...	.....
		Standard F			
12	73	.448	17	33	.350
14	51	.390	18	29	.330
16	38	.456	....	....	....

All in 500 foot coils.

LAMP, FIXTURE AND REINFORCED PORTABLE CORDS

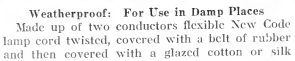
FIXTURE CORD
Single Conductor
Cotton or Silk



Insulated with 1/64-inch wall of rubber, braided over all with glazed cotton or silk.

Size B. & S.	Stranding	Wall of Rubber, in.	Weight Per 1000 Feet
20	10 No. 30	1/64	12
18	16 No. 30	1/32	14
16	26 No. 30	1/32	18
14	41 No. 30	3/64	33

REINFORCED PORTABLE CORD
Types P. and P. S. Dry Braid
For Use in Dry Places
Cotton or Silk Covered
Type P. W. P. Saturated Braid



Weatherproof: For Use in Damp Places

Made up of two conductors flexible New Code lamp cord twisted, covered with a belt of rubber and then covered with a glazed cotton or silk cord.

Size B. & S.	Stranding	Wall of Rubber Inches	Type P Wt. Per 1000 Ft. Cotton	Type P Wt. Per 1000 Ft. Silk	Type PWP Weight Per 1000 Feet
18	16 No. 30	1/32	80	78	84
16	26 No. 30	1/32	95	93	100
14	41 No. 30	3/64	150	146	155
12	65 No. 30	1/16	190	185	195
10	104 No. 30	1/16	240	235	250

Above cords are furnished in Type P. S. light insulation.

BREWERY CORD, TYPE C. B.

Brewery cord consists of two conductors stranded, rubber insulated, braided, and the two twisted together.

Size B. & S.	Stranding	Wall of Rubber Inches	Diameter Over All Inches	Weight Per 1000 Feet
18	16 No. 30	1/32	10/32	30
16	26 No. 30	1/32	11/32	40
14	41 No. 30	3/64	13/32	67
12	65 No. 30	3/64	15/32	90
10	104 No. 30	1/16	17/32	120

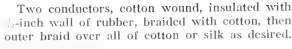
LAMP AND REINFORCED PORTABLE CORDS

TWISTED LAMP CORD
TYPE C
Cotton or Silk
Use: For Pendants in Dry Places

Standard braid is Green and Yellow. Covered with Sea Island cotton, then insulated with seamless rubber and finished with an ornamental braid of silk or cotton the desired color.

Size B. & S.	Stranding	Wall of Rubber, In.	Weight Per 1000 Feet
18	16 No. 30	1/32	28
16	26 No. 30	1/32	37
14	41 No. 30	3/64	67
12	65 No. 30	1/16	95

PARALLEL LAMP CORD, TYPE P. O.
Cotton or Silk
Use: For Portables in Dry Places



Two conductors, cotton wound, insulated with 1/32-inch wall of rubber, braided with cotton, then outer braid over all of cotton or silk as desired.

Size B. & S.	Stranding	Wall of Rubber, In.	Weight Per 1000 Feet
18	16 No. 30	1/32	29
16	26 No. 30	1/32	38
14	41 No. 30	3/64	69
12	65 No. 30	1/16	97

Above cords also furnished in light insulation.

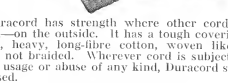
CANVASITE CORD, TYPE C. C.

Canvasite cord consists of two conductors stranded, rubber insulated, braided, twisted together, and finished with a weatherproof braid.

Size B. & S.	Stranding	Wall of Rubber Inches	Diameter Over All Inches	Weight Per 1000 Feet
18	16 No. 30	1/32	12/32	53
16	26 No. 30	1/32	13/32	68
14	41 No. 30	3/64	16/32	83
12	65 No. 30	3/64	17/32	105
10	104 No. 30	1/16	19/32	170

DURACORD

PORTABLE CORDS AND CABLES FOR HARD SERVICE



Duracord has strength where other cords are weak—on the outside. It has a tough covering of thick, heavy, long-fibre cotton, woven like fire hose, not braided. Wherever cord is subjected to hard usage or abuse of any kind, Duracord should be used.

PORTABLE CORD

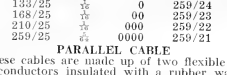
Size B&S	No. of Cond.	Approx. Outside Diam.	Amp. Cap.	Size B&S	No. of Cond.	Approx. Outside Diam.	Amp. Cap.
*18	2	3/8	3	6	2	1	50
18	2	1/2	3	16	3	1/2	6
16	2	1/2	6	14	3	5/8	15
14	2	5/8	15	12	3	5/8	20
12	2	5/8	20	10	3	3/4	25
10	2	3/4	25	8	3	7/8	35
8	2	7/8	35	6	3	1 1/2	50

Furnished in coils of 250 feet.

SINGLE CONDUCTOR CABLE

This cable is made up in special extra flexible stranding, rope lay with code thickness of 30 per cent Para rubber, and with a heavy woven cover on the outside which is impregnated with a waterproof oil-resisting compound.

It is especially adapted for use as welding cable, mine locomotive cable and motor leads.



Size	Stranding	Wall In.	Size	Stranding	Wall In.
4	133/25	1/8	0	259/24	3/16
3	168/25	1/8	00	259/23	3/16
2	210/25	1/8	000	259/22	3/16
1	259/25	1/8	0000	259/21	3/16

PARALLEL CABLE

These cables are made up of two flexible rope laid conductors insulated with a rubber wall of code thickness. Each conductor is finished with a weatherproof braid, the two conductors are laid side by side and covered with standard Duracord woven cover, which is then saturated with a weatherproof compound.

This is especially adapted for mining machines and storage battery service.

8	84/27	1/8	3	168/25	1/8
6	84/25	1/8	2	210/25	1/8
4	133/25	1/8	..	.....	.....

CONCENTRIC A MINING MACHINE CABLE

These cables are made up with an extra flexible inner conductor of the stranding in the table below, this conductor insulated with a rubber wall of Code thickness and composition, and then covered with one layer of tape and a saturated braid. The outer conductor is then put on, and over this is the same rubber insulation as on the inner conductor. Over all is the Duracord woven cover, thoroughly saturated.

5	133/26	1/8	3	133/24	1/8
4	133/25	1/8	2	259/26	1/8

Sizes not listed made up only on orders of 5000 ft. or over.

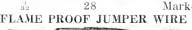
*This size does NOT bear Underwriters' tags.

INTERIOR WIRES

TELEPHONE, ANNUNCIATOR AND OFFICE TWISTED PAIR INTERIOR WIRE

Size	Diameter	Weight	
19	32	28	Market Price

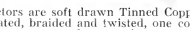
FLAME PROOF JUMPER WIRE



Conductors are soft drawn Tinned Copper rubber insulated, braided and twisted, one conductor white cotton, one conductor red cotton and then saturated with Flame Proof Compound.

Size	Diameter	Weight	
22	3/64	24	Market Price
20	3/64	24	Market Price
19	1/16	28	Market Price

TWISTED PAIR BRIDAL WIRE



Conductors are soft drawn Tinned Copper rubber insulated, braided and twisted, saturated with a weatherproof compound, wax finish, one conductor having a raised tracer to distinguish it from the other.

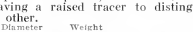
Size	Diameter	Weight	
18	1/16	32	Market Price
16	1/16	40	Market Price

TRIPLEX

Single conductors one-half price twisted pairs.

†Triplex conductors are one and one-half times the price of twisted pairs.

DAMP-PROOF-OFFICE WIRE



Damp-proof office wire is made by saturating the inner wraps in black weatherproof compound and the outer braid is saturated in paraffine compound and then given a high polish. Put up in 17-pound coils.

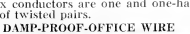
Size B&S	No. Ft. per Lb.	Advance over Base	Size B&S	No. Ft. per Lb.	Advance over Base
16	71	**$0.05**	18	98	**$0.06**

Extra Advances

Tinned wire	**$0.02**	1-lb. coils	**$0.01**
Twisted pairs	**.01**	1 & 2-lb. spools	**.02**
½-lb. coils	**.02**	5-lb. spools	**.01**

ANNUNCIATOR WIRE

Single and Twisted Pairs



Annunciator wire is copper wire insulated with two wraps of cotton wound in reverse direction, saturated in paraffine and highly polished. Put up on 7-pound spools, ½ and 1-pound coils.

Size B&S	No. Ft. per Lb.	Advance over Base	Size B&S	No. Ft. per Lb.	Advance over Base
16	109	**$0.05**	**20**	238	**$0.07**
18	170	**.06**			

Extra Advances

Tinned wire	**$0.02**	1-lb. coils	**$0.01**
Twisted pairs	**.01**	1 & 2-lb. spools	**.02**
½-lb. coils	**.02**		

TELEPHONE AND TELEGRAPH WIRES

Extra Galvanized

There are three standards of extra galvanized telephone and telegraph wire in general commercial use:

"Extra Best Best" (E.B.B.)—Made by improved continuous process and stands highest in conductivity of any telegraph wire with a weight per mile ohm of from 4,700 to 5,000 pounds. It is largely used by telegraph companies and in railway telegraph service.

"Best Best" (B.B.)—Superior to the E. B. B. in mechanical qualities and equal in galvanizing but of somewhat lower electrical value. Weight per mile ohm 5,600 to 6,000 pounds. This grade is used very largely by telephone companies.

"Steel" (or homogeneous metal)—More expressly designed for short-line telephone service, where a measure of conductivity can be exchanged for high tensile strength in a light wire. Weight per mile ohm 6,500 to 7,000 pounds.

All grades are galvanized the same and to the highest commercial standard.

Based on Standard Specifications

Birmingham Wire Gage	Diam. in Mils	Area in Circular Mils	Approximate Wt. Lb. Per 1000 Ft.	Approximate Wt. Lb. Per Mile	Bundles Per Mile
4	238	56,644	153	811	4
6	203	41,209	112	590	3
8	165	27,225	74	390	2
9	148	21,904	60	314	2
10	134	17,956	49	258	2
11	120	14,400	39	206	2
12	109	11,881	32	170	2
14	83	6,889	19	99	2

Sizes BWG	Approx. Breaking Strain in Lb. Ex.B.B.	B.B.	Steel	Resistance Per Mile (International Ohms) at 68° F. Ex.B.B.	B.B.	Steel
4	2,028	2,271	2,433	5.98	7.15	8.32
6	1,475	1,652	1,770	8.22	9.83	11.44
8	975	1,092	1,170	12.43	14.87	17.31
9	785	879	942	15.44	18.47	21.50
10	645	722	774	18.79	22.48	26.16
11	515	577	618	23.54	28.16	32.77
12	425	476	510	28.52	34.12	39.71
14	247	277	297	48.98	58.59	68.18

Prices

Size BWG	List Price in Cents Per Lb. Ex.B.B.	B.B.	Steel
4	**7¼**	**6¾**	**6¼**
6	**7⅛**	**6½**	**6**
8	**7⅛**	**6½**	**6**
9	**7⅛**	**6½**	**6**
10	**7¼**	**6¾**	**6¼**
11	**7¼**	**6¾**	**6¼**
12	**7½**	**6⅞**	**6½**
14	**8⅛**	**7½**	**7⅛**

1500 Lbs. and over, **¼c** per Lb. less.

STEEL STRAND

FOR GUYING POLES AND FOR SPAN WIRE

Seven Steel Wires Twisted Into a Single Strand, Galvanized or Extra Galvanized

Diam. In.	Approx. Wt. Lb. Per 1000 Ft.	Galvanized or Extra Galvanized — Regular: Approx. Strength in Lb.	Price Per 100 Ft.	Extra Galvanized — Siemens-Martin: Approx. Strength in Lb.	Price Per 100 Ft.
½	517	7,400	**$5.50**	12,100	**$5.25**
⅜	296	4,250	**3.50**	6,950	**3.25**
5/16	205	3,200	**2.50**	5,350	**2.50**
¼	121	1,900	**1.75**	3,150	**1.70**

Diam. In.	Approx. Wt. Lb. Per 1000 Ft.	Extra Galvanized — High Strength: Approx. Strength in Lb.	Price Per 100 Ft.	Extra Galvanized — Extra High Strength: Approx. Strength in Lb.	Price Per 100 Ft.
½	517	18,800	**$7.25**	26,900	**$8.80**
⅜	296	10,800	**4.40**	15,400	**5.25**
5/16	205	8,000	**3.20**	11,200	**4.25**
¼	121	4,750	**2.25**	6,650	**2.85**

SPECIAL TELEPHONE STRAND

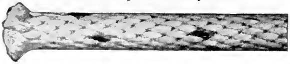
Dia. In.	Approx. Wt Lb. 1000 Ft.	Approx. Strength in Lb.	Price Per 100 Ft.	Dia. In.	Approx. Wt.Lb. 1000 Ft.	Approx. Strength in Lb.	Price Per 100 Ft.
9/32	164	4,000	**$2.05**	⅜	296	10,000	**$4.40**
5/16	205	6,000	**2.50**	7/16	399	16,000	**7.25**

GALVANIZED ARC LAMP CORD

Diam. In.	Wt.Lb. Per Ft.	Breaking Stress in Lbs.	Construction	Price Per 100 Ft.
⅜	163	2000	9x7	**$5.00**
5/16	107	1530	9x4	**3.50**
¼	77	1125	9x4	**2.75**

SAMSON SPOT WATERPROOFED CORD

For Arc Lamp and Trolley Cord



Size No.	Diam. In.	Wt.Lb. Per Coils of 1200 Ft.	Size No.	Diam. In.	Wt.Lb. Per Coils of 1200 Ft.
8	¼	32	**14**	7/16	100
10	5/16	50	**16**	½	125
12	⅜	70	....	....	......

AMERICAN ARC LAMP CHAIN

ARC LAMP CHAINS

Steel Link, Heavily Galvanized

Mfrs. No.	Lgth. Link, In.	Tensile Strength	Wt.Lbs. 1000	Price 100 Ft.
31	1 15/32	915¼	118	**$8.50**
33	1 9/32	725	89	**8.25**
35	1	550	71	**7.50**
35	3⅛	**40.00**	**35** 1⅛	**30.00**

500 or 1000 feet in a reel.

ARC LAMP HOOKS

Galvanized Steel Mfrs. No.	Lgth. In.	Price Per 1000
31	4½	**$60.00**
33	3⅞	**60.00**

ARC LAMP RINGS

Galvanized Steel Mfrs. No.	Diam. Ring, In.	Price Per 1000
31	1¾	**$90.00**
33	1¼	**50.00**

SILK AND ENAMELED MAGNET WIRE

Average Weight of Magnet Wire on Reels and Spools

Numbers	Pounds
4/0–15	200
16–17	60–70
18–20	20–30
21–25	7–10
26–28	4–6
29–32	2–4
33–40	¾–1

SILK COVERED

	Single Wound		Double Wound	
Size B.&S.	Approx. Ft., Per Lb.	Differential	Approx. Ft., Per Lb.	Differential
16	125	**$0.30**	125	**$0.54 ¾**
17	158	**.31**	156	**.45**
18	199	**.325**	196	**.46**
19	257	**.34**	253	**.47**
20	318	**.285**	312	**.50**
21	402	**.315**	396	**.53 ¾**
22	507	**.355**	501	**.605**
23	636	**.405**	629	**.715**
24	802	**.475**	792	**.825**
25	1,003	**.555**	987	**.985**
26	1,267	**.655**	1,248	**1.185**
27	1,590	**.805**	1,561	**1.41**
28	2,008	**.905**	1,964	**1.635**
29	2,510	**1.045**	2,437	**1.855**
30	3,160	**1.195**	3,047	**2.175**
31	4,000	**1.375**	3,765	**2.485**
32	5,020	**1.595**	4,720	**2.895**
33	6,242	**1.91**	5,817	**3.295**
34	7,757	**2.23**	7,250	**3.915**
35	9,661	**2.63**	8,826	**4.595**
36	11,918	**3.16**	10,661	**5.425**
37	15,060	**2.70**	13.477	**4.60**
38	18,281	**3.25**	15,060	**5.40**
39	21,321	**4.00**	18,018	**6.30**
40	25,575	**4.90**	21,322	**7.50**

ENAMELED MAGNET WIRE

	Plain Enamel		Enamel and Single Cotton		Enamel and Single Silk	
Size B.&S.	Approx. Feet Per Lb.	Differential	Approx. Feet Per Lb.	Differential	Approx. Feet Per Lb.	Differential
16	126	**$0.045**	122	**$0.09 ¼**	123	**$0.34**
17	159	**.05**	154	**.105**	156	**.35**
18	201	**.055**	193	**.12**	197	**.36**
19	260	**.06**	247	**.13**	253	**.38**
20	320	**.065**	304	**.15 ¼**	315	**.35**
21	404	**.07**	384	**.18 ¼**	398	**.385**
22	509	**.085**	479	**.22**	503	**.44**
23	642	**.11**	605	**.25 ¾**	630	**.49¼**
24	810	**.13**	763	**.315**	794	**.56**
25	1,019	**.15**	958	**.355**	992	**.645**
26	1,286	**.17**	1,211	**.425**	1,253	**.735**
27	1,620	**.19**	1,515	**.485**	1,571	**.875**
28	2,042	**.21**	1,873	**.545**	1,984	**.965**
29	2,570	**.25**	2,336	**.645**	2,474	**1.115**
30	3,240	**.28**	2,900	**.745**	3,115	**1.33**
31	4,082	**.30**	3,577	**.93**	3,939	**1.725**
32	5,132	**.32**	4,570	**1.08**	4,928	**1.975**
33	6,445	**.34**	5,562	**1.28**	6,103	**2.265**
34	8,093	**.375**	6,925	**1.525**	7,554	**2.62**
35	10,197	**.455**	8,302	**1.845**	9,400	**3.10**
36	12,813	**.565**	9,546	**2.255**	11,560	**3.74**
37	16,110	**.68**	11,793	....	14,563	**4.00**
38	20,274	**.80**	13,726	....	17,641	**5.60**

Base price and prices on large sizes on application. Differentials are to be added to the base price.

COTTON COVERED MAGNET WIRE

	Single Wound		Double Wound	
Size B &S.	Approx. Ft., Per Lb.	Differential	Approx. Ft., Per Lb.	Differential
0	3	**$0.055**	3	**$0.065**
1	4	**.055**	4	**.065**
2	5	**.055**	5	**.065**
3	6	**.055**	6	**.065**
4	8	**.055**	8	**.065**
5	10	**.055**	10	**.085**
6	12	**.005**	12	**.01**
7	16	**.01**	15	**.015**
8	19	**.01 ⅜**	19	**.02**
9	25	**.01 ¾**	24	**.03**
10	31	**.02**	31	**.04**
11	39	**.025**	39	**.045**
12	50	**.03**	49	**.055**
13	62	**.04**	62	**.065**
14	78	**.05**	78	**.075**
15	99	**.055**	97	**.085**
16	124	**.065**	123	**.095**
17	156	**.07 ¼**	153	**.115**
18	195	**.085**	192	**.135**
19	251	**.09**	248	**.145**
20	307	**.11**	301	**.175**
21	387	**.113**	381	**.215**
22	483	**.155**	475	**.255**
23	611	**.185**	591	**.295**
24	771	**.225**	737	**.375**
25	969	**.27**	917	**.455**
26	1,224	**.33**	1,142	**.525**
27	1,533	**.395**	1,406	**.655**
28	1,896	**.445**	1,729	**.785**
29	2,370	**.515**	2,151	**.935**
30	2,942	**.585**	2,639	**1.095**
31	3,632	**.71**	3,200	**1.33**
32	4,655	**.82**	3,879	**1.56**
33	5,688	**.94**	4,655	**1.78**
34	7,112	**1.15**	5,564	**2.03**
35	8,532	**1.39**	6,566	**2.33**
36	9,842	**1.69**	7,530	**2.68**
37	12,195	**1.37**	8,532	**2.50**
38	14,224	**2.05**	9,478	**3.50**
39	16,778	**2.70**	10,235	**4.50**
40	18,281	**3.50**	10,661	**5.80**

TINNED STEEL ARMATURE BANDING WIRE

Grade B

		Price Per Pound		
Size B.&S.	Tensile Strength in Lbs.	25 to 50 Lb. Spools	10 Lb. Spools	5 Lb Spools
10	1631	**$0.125**	**$0.135**	**$0.145**
11	1292	**.128**	**.138**	**.148**
12	1026	**.132**	**.142**	**.152**
13	814	**.137**	**.147**	**.157**
14	645	**.140**	**.150**	**.160**
15	512	**.143**	**.153**	**.163**
16	405	**.150**	**.160**	**.170**
17	322	**.154**	**.164**	**.174**
18	255	**.160**	**.170**	**.180**
19	202	**.172**	**.182**	**.192**
20	181	**.187**	**.197**	**.207**
21	128	......	**.210**	**.220**
22	101	......	**.230**	**.240**
23	......	......	**.247**	**.257**
24	......	......	**.268**	**.278**
25	......	......	**.290**	**.300**

Base price and prices on large sizes on application. Differentials are to be added to the base price.

NICHROME RESISTANCE WIRE

"NICHROME" has a specific resistance equivalent to that of Mercury, viz.:—about 100 michromes per cubic centimeter.

This alloy is practically non-corrosive, has an extremely high melting point (about 2800° F.) and is far superior to nickel in its ability to withstand high temperatures.

Temperature co-efficient (or change of resistance with change of temperature) is small, being + .00024 per 1° F. (.00044 per 1° C.).

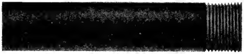
This alloy is especially recommended for use in Electrically Heated Appliances and Resistance Elements generally where extreme conditions are encountered.

No. B & S	Dia. in In.	Ohms Per 1000 Ft. at 20° C.	Wt. Per 1000 Ft. Bare Wire Lb.	Ft. Per Lb. Bare Wire	Price Per Lb. Bare Wire	Carrying Capacity of Nichrome Straight Wires Stretched Horizontally in Free Air — Current in Amperes: 100° C. 212° F.	200° 392°	300° 572°	400° 752°	500° 932°	600° 1,112°	700° 1,292°	800° 1,472°	900° 1,652°	1,000° 1,832°
1	.289	7.9	231.0	4.33	**$3.00**	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
2	.258	9.9	184.0	5.43	**3.00**	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
3	.229	12.6	145.0	6.90	**3.00**	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
4	.204	15.9	115.0	8.70	**3.00**	32.0	47.5	62.8	77.5	94.6	106.	123.	139.	166.	191.
5	.182	19.9	92.0	10.9	**3.00**	27.0	40.0	53.3	65.4	78.5	87.8	105.	121.	141.	162.
6	.162	25.1	73.0	13.7	**3.00**	22.6	33.6	45.0	54.8	67.2	74.5	89.2	102.	119.	137.
7	.144	31.8	57.0	17.5	**3.00**	19.0	28.2	37.9	46.2	56.6	64.4	76.9	87.0	102.	116.
8	.1285	40.3	45.0	22.2	**3.00**	15.9	23.9	32.3	39.3	46.4	54.6	64.5	72.9	86.2	97.5
9	.114	50.8	36.0	27.8	**3.00**	13.4	20.2	26.4	33.2	40.6	46.6	53.3	63.1	73.7	82.8
10	.102	63.4	29.0	34.5	**3.00**	11.3	17.1	23.4	28.1	34.4	39.5	47.0	53.5	62.7	70.5
11	.091	79.7	23.0	43.5	**3.10**	9.5	14.5	19.8	24.7	29.1	33.6	40.0	45.3	53.1	59.7
12	.081	100.6	18.0	55.6	**3.20**	8.0	12.3	16.9	20.2	24.8	28.6	34.2	39.0	45.4	50.7
13	.072	127.3	14.3	69.9	**3.30**	7.0	10.5	14.3	17.3	21.1	24.3	29.1	33.1	38.4	42.8
14	.064	161.1	11.3	88.5	**3.40**	5.9	8.9	12.1	14.7	17.9	20.6	24.7	28.2	32.5	36.4
15	.057	203.0	9.2	109.0	**3.50**	5.1	7.6	10.4	12.5	15.3	17.7	21.1	24.2	27.8	31.1
16	.051	254.0	7.2	139.0	**3.60**	4.4	6.5	8.8	10.7	13.1	15.1	18.0	20.9	23.5	**26.3**
17	.045	326.0	5.6	179.0	**3.80**	3.7	5.5	7.5	9.1	11.2	12.8	15.4	17.5	20.1	**22.3**
18	.040	412.0	4.42	226.0	**4.00**	3.2	4.8	6.5	7.8	9.5	11.0	13.0	14.7	17.1	**19.0**
19	.036	509.0	3.58	279.0	**4.20**	2.7	4.2	5.6	6.7	8.2	9.3	11.0	12.5	14.5	**16.2**
20	.032	645.0	2.83	353.0	**4.40**	2.4	3.6	4.8	5.8	7.0	8.0	9.4	10.8	12.3	**13.8**
21	.0285	813.0	2.24	446.0	**4.60**	2.1	3.1	4.1	5.0	6.0	6.8	8.0	9.0	10.5	**11.7**
22	.0254	1031.0	1.77	565.0	**4.85**	1.7	2.7	3.6	4.3	5.1	5.8	6.8	7.7	9.0	**10.0**
23	.0226	1292.0	1.41	709.0	**5.10**	1.5	2.3	3.1	3.7	4.5	5.0	5.8	6.6	7.7	8.6
24	.0201	1634.0	1.12	893.0	**5.40**	1.3	2.0	2.7	3.2	3.7	4.2	4.9	5.4	6.4	7.3
25	.0179	2060.0	0.89	1123.0	**5.70**	1.1	1.7	2.3	2.7	3.2	3.6	4.2	4.7	5.5	6.2
26	.0159	2611.0	0.70	1429.0	**6.00**	.96	1.5	2.0	2.3	2.7	3.1	3.6	4.0	4.7	5.4
27	.0142	3274.0	0.56	1786.0	**6.40**	.86	1.3	1.7	2.0	2.4	2.7	3.1	3.4	4.0	4.6
28	.0126	4159.0	0.44	2273.0	**6.80**	.74	1.1	1.5	1.8	2.0	2.3	2.7	3.0	3.5	3.9
29	.0113	5168.0	0.35	2857.0	**7.20**	.67	1.0	1.3	1.6	1.8	2.1	2.4	2.7	3.1	3.3
30	.0100	6600.0	0.276	3623.0	**7.70**	.55	.8	1.1	1.3	1.6	1.7	2.0	2.2	2.5	2.9
31	.0089	8333.0	0.219	4566.0	**8.40**	.47	.7	1.0	1.1	1.4	1.5	1.7	1.9	2.2	2.5
32	.0080	10,313.0	0.177	5650.0	**9.50**	.41	.6	.8	1.0	1.2	1.3	1.5	1.7	1.9	2.2
33	.0071	13,098.0	0.139	7194.0	**11.00**	.35	.55	.7	.9	1.0	1.2	1.3	1.5	1.7	1.9
34	.0063	16,623.0	0.110	9091.0	**13.50**	.30	.5	.6	.8	.9	1.0	1.2	1.3	1.4	1.6
35	.0056	21,019.0	0.087	11,490.0	**15.00**	.26	.4	.5	.7	.8	.9	1.0	1.1	1.3	1.4
36	.0050	26,400.0	0.069	14,490.0	**16.50**	.22	.3	.5	.6	.7	.8	.9	1.0	1.1	1.2
37	.0045	32,672.0	0.056	17,860.0	**19.50**	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
38	.0040	41,240.0	0.045	22,220.0	**22.50**	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
39	.0035	54,098.0	0.034	29,410.0	**27.00**	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
40	.0031	73,333.0	0.025	40,000.0	**33.00**	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Prices of Cotton and Silk Covered Wires furnished on request.

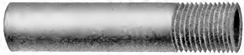
RIGID STEEL CONDUIT

ENAMELED



Regulation weight, superior quality soft steel pipe; free of all burrs, scale or silicates; ends reamed to facilitate fishing; enameled inside and outside with best grade of elastic enamel. This enamel is proof against water, acid and alkali, and will bend without cracking. Smooth inside surface cannot possibly cut or injure wire insulation, and does away with the necessity for lubricants of any kind.

GALVANIZED



Regulation weight, superior quality; soft steel pipe; free of all burrs, scale or silicates; ends reamed to facilitate fishing; galvanized is galvanized on exterior and enameled interior. Rust proof; clean, rust proof threads; bonds with concrete; bends easily; perfect joints for grounding system.

CONDUIT

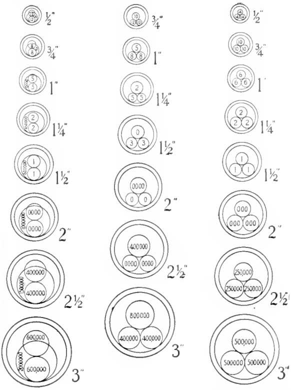
Size, In.	Wt. Lbs. Per Ft.	Diam., In. External	Diam., In. Internal	Thickness, In.	Threads per In.	Price Per Ft.
¼	.425	.540	.364	.088	18	**$0.08½**
⅜	.568	.675	.493	.091	18	**.08½**
½	.852	.840	.622	.109	14	**.08½**
¾	1.134	1.050	.824	.113	14	**.11½**
1	1.684	1.315	1.049	.133	11½	**.17**
1¼	2.281	1.660	1.380	.140	11½	**.23**
1½	2.731	1.900	1.610	.145	11½	**.27½**
2	3.678	2.375	2.067	.154	11½	**.37**
2½	5.819	2.875	2.469	.203	8	**.58½**
3	7.616	3.500	3.068	.216	8	**.76½**
3½	9.202	4.000	3.548	.226	8	**.92**
4	10.889	4.500	4.026	.237	8	**1.09**
4½	12.642	5.000	4.506	.247	8	**1.27**
5	14.810	5.563	5.047	.258	8	**1.48**
6	19.185	6.625	6.065	.280	8	**1.92**

Size, In.	COUPLINGS Wt. Lbs. Per 100	COUPLINGS Price Each	ELBOWS Wt. Lbs. Per 100	ELBOWS Radius, In.	ELBOWS Offset, In.	ELBOWS Price Each
¼	6.0	**$0.05**	42	4.250	7.500	**$0.19**
⅜	9.5	**.06**	53	4.250	7.500	**.19**
½	11.6	**.07**	75	4.250	7.375	**.19**
¾	20.9	**.10**	120	5.375	8.375	**.25**
1	34.3	**.13**	200	5.750	9.500	**.37**
1¼	53.5	**.17**	300	7.250	10.875	**.45**
1½	74.3	**.21**	427	8.250	12.625	**.60**
2	120.8	**.28**	700	9.500	15.250	**1.10**
2½	172.0	**.40**	1300	10.500	17.375	**1.80**
3	249.8	**.60**	1700	13.000	19.500	**4.80**
3½	424.1	**.80**	2300	15.000	21.250	**10.60**
4	474.1	**1.00**	2700	16.000	22.500	**12.25**
4½	550.0	**1.50**	3100	18.000	24.375	**18.55**
5	700.0	**1.65**	5500	24.000	32.000	**25.75**
6	750.0	**2.40**	9000	30.000	39.750	**32.00**

Conduits in 10 foot lengths, threaded both ends with one coupling.

Conduit pipe is known and spoken of by its nominal inside diameter.

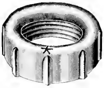
CONDUIT SIZES FOR DIFFERENT SIZE WIRES



No. B. & S.	Circular Mils	Amps. Rubber	Size of Pipe 1 Wire	Size of Pipe 2 Wire	Size of Pipe 3 Wire
14	4,107	12	½	½	¾
12	6,530	17	½	½	¾
10	10,380	24	½	¾	¾
8	16,510	33	½	¾	1
6	26,250	46	½	1	1¼
5	33,100	54	¾	1¼	1¼
4	41,740	65	¾	1¼	1¼
3	52,630	76	¾	1¼	1¼
2	66,370	90	¾	1¼	1½
1	83,690	107	¾	1½	1½
0	105,500	127	1	1½	2
00	133,100	150	1	2	2
000	167,800	177	1	2	2
0000	211,600	210	1¼	2	2½
....	250,000	235	1¼	2½	2½
....	350,000	300	1½	2½	3
....	450,000	380	1½	3	3½
....	500,000	390	1½	3	3
....	600,000	450	2	3	3½
....	700,000	500	2	3½	3½
....	800,000	550	2	3½	4
....	900,000	600	2	3½	4
....	1,000,000	650	2	4	4
....	1,200,000	730	2½	4½	4½
....	1,400,000	810	2½	4½	5
....	1,600,000	890	2½	5	5
....	1,800,000	970	3	5	6
....	1,900,000	1,010	3	5	6
....	2,000,000	1,050	3	5	6

CONDUIT FITTINGS

BUSHINGS

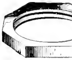


Malleable iron; rust proof. Entire surface is sherardized. Ground wires are easily soldered on. Rounded end prevents abrasion of wires. ⅜ to 3 inch sizes are packed in paper boxes.

Mfrs. No.	Size In.	Std. Pkg.	Price Per 100	Mfrs. No	Size In.	Std. Pkg.	Price Per 100
100	⅜	1000	**$6.00**	**107**	2½	100	**$60.00**
101	½	5000	**6.00**	**108**	3	100	**90.00**
102	¾	5000	**8.00**	**109**	3½	25	**200.00**
103	1	1000	**15.00**	**110**	4	25	**300.00**
104	1¼	500	**20.00**	**111**	4½	10	**400.00**
105	1½	500	**25.00**	**112**	5	10	**500.00**
106	2	200	**40.00**	**113**	6	10	**600.00**

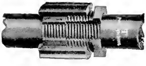
LOCK-NUTS

Sizes ⅜ to 1 inch are made of special composition steel to insure strength; sizes 1¼ to 8 inches are made of best grade malleable iron, sherardized. Sizes ⅜ to 3 inch are packed in cartons.



Mfrs. No.	Size In.	Std. Pkg.	Wt Lb. Per 100	Price Per 100	Mfrs. No	Size In.	Std. Pkg.	Wt.Lb. Per 100	Price Per 100
300	⅜	1000	1⅘	**$2.50**	**305**	1½	500	12	**$15.00**
301	½	5000	1⅘	**2.50**	**306**	2	200	15	**20.00**
302	¾	5000	2 1/10	**3.50**	**307**	2½	100	21	**30.00**
303	1	1000	3½	**6.00**	**308**	3	100	32	**50.00**
304	1¼	500	8	**10.00**	**309**	3½	25	46	**70.00**

ERCIKSON CONDUIT COUPLING



Does away with running threads. Permits opening of conduit at any point.

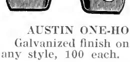
Mfrs. No	Size In.	Std. Pkg.	Price Per 100	Mfrs. No.	Size In.	Std. Pkg.	Price Per 100
675	½	100	**$16.00**	**678**	1¼	25	**$50.00**
676	¾	50	**20.00**	**679**	1½	25	**75.00**
677	1	25	**28.00**	**680**	2	20	**130.00**

CHASE COUPLING

Mfrs. No.	Size In.	Wt. Lbs. Per 100	Price Per 100
830	¼	4	**$10.00**
831	⅜	5	**10.00**
832	½	7	**10.00**
833	¾	10	**12.00**

Standard package, 100.

TINNED STEEL PIPE STRAPS



Size In	Price Per 100	Size In.	Price Per 100
¼	**$1.00**	1¼	**$2.50**
⅜	**1.00**	1½	**3.00**
½	**1.00**	2	**3.50**
¾	**1.50**	2½	**8.00**
1	**2.00**	3	**10.00**

AUSTIN ONE-HOLE CONDUIT STRAPS

Galvanized finish only. Carton, any style, 100 each.

Style A

Mfrs. No.	Size In.	Std. Pkg.	Wt. Lb. Per 100	Price Per 100
220	½	500	3¼	**$3.50**
221	¾	200	4	**4.00**
222	1	100	8½	**6.00**

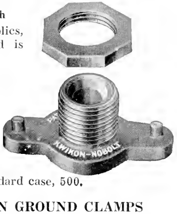
CONDUIT FITTINGS

HICKEY FIXTURE STUD

This Stud is of Malleable Iron, and is furnished either Galvanized or Japanned. As shown by cut all four prongs have extra long slots to allow adjustment. With this stud no Hickeys are required on straight electric work if combination insulated joint is used.

Mfrs. No	Size Stud In.	Std. Pkg	Wt. Lbs. Per 100	Price Per 100
16	⅜	100	9	**$5.00**
17	½	100	10	**6.50**
Stove Bolts and Nuts		1000	1	**.50**

KWIKON NO-BOLT STUDS



Galvanized Finish

As the name implies, the "No-Bolt" stud is used without bolts.

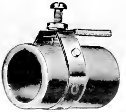
Open Type

Mfrs. No	Size In.	Wt.Lb. Std.Cs.	Price Per 100
358	⅜	43	**$5.00**
359	½	53	**6.50**
Closed Type			
368	⅜	45	**6.50**
369	½	55	**7.50**

Carton, 100; standard case, 500.

BLACKBURN GROUND CLAMPS

FOR TELEPHONE AND SIMILAR CIRCUITS



No. A1

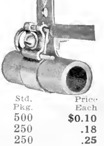
No. 0 fits ⅜ and ½ inch ground rods. For rural exchanges.

No. A-1 fits ⅜, ½, ¾, 1 and 1¼ inch pipe. Improved style. Standard size.

No. 2 fits 1½, 2, 2½ and 3 inch pipe.

Mfrs. No.	Std. Pkg.	Wt.Lb. Per 1000	Price Per 100
0	100	30	**$10.00**
A1	100	50	**11.00**
2	100	60	**12.00**

SURETITE SOLDERLESS GROUND CLAMP



An approved ground clamp for lighting and power work which eliminates a soldering operation and many other objectionable features. Hook the wire into the clamp and a screw driver finishes the job.

Mfrs No	Description	Carton	Std. Pkg.	Price Each
3028	⅜ to 1 in.	100	500	**$0.10**
3029	⅜ to 2 in.	50	250	**.18**
3030	⅜ to 3 in.	50	250	**.25**

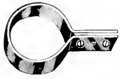
CONDUIT FITTINGS

STEEL SUSPENSION BARS

Bars are made in 10 foot lengths. Made of first quality soft steel and can be easily cut with cold chisel.

Mfrs. No.	For Size Pipe, In.	Price Per Ft	Mfrs. No.	For Size Pipe, In.	Price Per Ft
1	½ to 1½	**$0.08**	**3**	3½ to 6	**$0.10**
2	2 to 3	**.09**	**4**	7 to 8	**.20**

STEEL RINGS WITH BOLTS



For Size Pipe, In.	Price Each	For Size Pipe, In.	Price Each
½	**$0.14**	2	**$0.22**
¾	**.14**	2½	**.24**
1	**.16**	3	**.26**
1¼	**.18**	3½	**.30**
1½	**.20**	4	**.32**

LAG SCREWS AND BOLTS

Made for pipe sizes ½ to 8 inches.

For Size Pipe, In.	Price Each	For Sipe Pipe, In.	Price Each
½ to 1½	**$0.10**	3½ to 8	**$0.14**
2 to 3	**.12**	....	....

AUSTIN STRAIGHT BOX HANGER AND STUD

Stud is slotted allowing free movement along the bar, may be tightened by locknut, making it possible to set box at any desired spot.

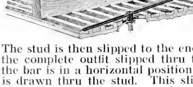
Mfrs. No	Std. Pkg.	Wt. Lb. Per 100	Price Per 100
900	1000	62	**$25.00**

AUSTIN UNIVERSAL BOX CLEAT

For sidewall construction and cleat work.

Mfrs. No.	Std. Pkg.	Wt. Lb. Per 100	Price Per 100
910	1000	60	**$20.00**

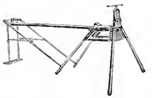
AUSTIN OLD WORK HANGER



The plaster is opened only large enough to permit the stud passing thru. The stud is then slipped to the end of the bar, and the complete outfit slipped thru the hole. When the bar is in a horizontal position, the wire leader is drawn thru the stud. This slides the bar into position and centers the stud on the bar. With the use of a special locknut, the outlet box is fastened to the stud and secured tightly in place.

Mfrs. No.	Std. Pkg.	Wt. Lb. Per 100	Price Per 100
920	1000	35	**$25.00**

MARTIN PORTABLE VISE STANDS AND PIPE BENDERS



LARGE SIZE

With rear support, full lengths of pipe can be used without tilting stand. Roller in rear support enables one man to move pipe forward or backward. Capacity, with chain vise is 4 inches; with hinged vise, 4½ inches; bender capacity, 1 inch. Can be supplied with 6-inch capacity vise; price on application.

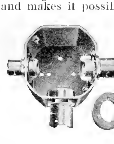
Legs for stand are made of ordinary 1¼-inch black W. I. pipe, each one being cut 45 inches long. No threads are necessary as the legs slip into sockets at the four corners of stand.

Mfrs. No.	Description	Price Each
1-A	Complete with Hinged Vise	**$39.00**
1-B	Stand with Hinged Vise, Less Legs	**35.00**
1-C	Stand with Legs, Less Vise (Drilled for Hinged Vise)	**31.00**
1-D	Stand, Less Vise and Legs (Drilled for Hinged Vise)	**27.00**
1-E	Complete with Chain Vise	**39.00**
1-F	Stand with Chain Vise, Less Legs	**35.00**
1-G	Stand with Legs, Less Vise (Drilled for Chain Vise)	**31.00**
1-H	Stand, Less Vise and Legs (Drilled for Chain Vise)	**27.00**

Shipping weight of stand complete with hinged vise, 54 pounds; with chain vise, 50 pounds.

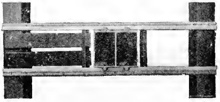
ROHN KNOCKOUT REDUCER

This fitting is for use in reducing knockouts in outlet boxes, cabinets, etc., and makes it possible to reduce knockouts for use with smaller size conduits or other fittings.



Mfrs. No.	Std. Pkg.	Wt Lb Per 100	Price Per 100
Size ¾ to ½ Inch			
075	100	¾	**$2.00**
Size 1 to ½ Inch			
0100	50	1½	**2.50**
Size 1 to ¾ Inch			
0101	50	1	**2.50**

KRUSE SWITCH BOX SUPPORTS AND LATH HOLDERS



Made of galvanized sheet metal, are U shaped, are 16½ inches long, have indentations which prevent the switch box from moving in the strip and holes to receive nails. Kruse strips are all alike, no rights or lefts; use same strips for single or gang boxes, top or bottom.

Cat. No.	Price Per Set
409	**$0.10**

RITTENHOUSE CONDUIT BENDER

The bender head is a semi-steel casting and is guaranteed to stand all kinds of hard usage. It is tapped to take 1¼ inch pipe handle. Stock handle is 1 inch pipe reinforced with a few inches of 1¼ inch pipe.

The curved bending hed (3½ inch radius) will not kink or crush the conduit.

Mfrs. No.	Description	Price Each
1	Bender Complete for ½ Inch Pipe	$5.50
1	Head Only, Tapped for 1¼ Inch Pipe	4.00
2	Bender Complete for ¾ Inch Pipe	6.00
2	Head Only, Tapped for 1¼ Inch Pipe	4.50
5-A	Adjustable for ½ and ¾ Inch Pipe	7.50
5-A	Adjustable Bender Head Only	6.00

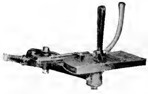
LAKIN HICKEYS

For short bends in awkward positions. Will not kink the pipe. The threaded end fits standard 1 inch coupling.

Screw a piece of 1-inch pipe in the other end of coupling. Never necessary to throw away the hickey, even if the handle breaks; simply unscrew the coupling.

Mfrs. No.	Size, Pipe Inches	Std. Pkg.	Price Each
335	½	10	$1.75
336	¾	5	2.25

STANDARD CONDUIT ELBOW FORMER

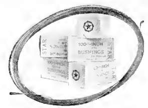


For ½ in. and ¾ in. Conduit. A practical Conduit Elbow Former, which forms standard shaped elbows perfectly and accurately, exactly where wanted. Saves time over old methods and saves material by climinating the waste of pipc. Furnished complete.

Mfrs. No.	Std. Pkg.	Weight Each	Price Each
339	2	31	$30.00

SUPERIOR FISH WIRE

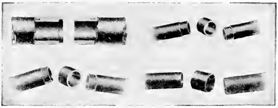
Specially prepared flat tempered spring wire. The flat shape makes the wire more flexible, which is necessary for long runs of conduit having several bends, and tempering prevents the wire from curling after constant use.



The standard sizes are all .060 inch thick (about $\frac{1}{16}$ inch).

Mfrs. No.	Size In.	Shpg. Wt. Lb. Per 1000 Ft.	Price 'er 100 Ft.
1000	⅛x.060	24	$2.00
1001	$\frac{3}{16}$x.060	35	3.00
1002	¼x.060	46	4.00

ORANGEBURG FIBRE CONDUIT
STANDARD—SCHEDULE A



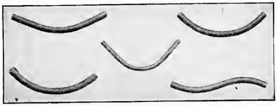
SOCKET JOINT

Cat. No.	Inside Diam., In.	Standard Crate Contains, Ft.	Standard Crate Wt. Lbs.	Wt. Lbs. Per Ft	Price Per Ft
675	2	200	275	0.92	$0.10
676	2½	200	320	1.10	.11
677	3	150	290	1.35	.12
678	3½	125	310	1.65	.13
679	4	100	280	1.85	.15
680	4½	100	330	2.25	.19

HARRINGTON JOINT
Coupling Included with Each Length

Cat. No.	Inside Diam., In.	Standard Crate Contains, Ft.	Standard Crate Wt. Lbs.	Wt. Lbs. Per Ft.	Price Per Ft
681	2	200	295	0.95	$0.13
682	2½	200	355	1.20	.14
683	3	150	330	1.45	.15
684	3½	125	335	1.75	.16
685	4	100	320	2.00	.18
686	4½	100	375	2.45	.23

CONDUIT BENDS AND FITTINGS



SOCKET JOINT
Standard Bends

Cat. No	Inside Diam. In.	45° and 90° Lgth. Ft.	45° and 90° Radius In	"S" Radius 20″ Offset	Standard Crate Pieces	Standard Crate Wt. Lbs.	Price Each
687	2	5	18-24-36	36	25	260	$1.75
688	2½	5	24-36	36	25	295	1.80
689	3	5	36	36	20	285	1.85
690	3½	5	36	36	15	305	2.00
691	4	5	36	36	12	295	2.25
602	4½	5	36	36	9	250	3.25

HARRINGTON JOINT
Coupling Included with Each Bend or Fitting

Cat. No	Inside Diam. In.	45° and 90° Lgth. Ft.	45° and 90° Radius In	"S" Radius 20″ Offset	Standard Crate Pieces	Standard Crate Wt. Lbs.	Price Each
693	2	5	18-24-36	36	25	270	1.90
694	2½	5	24-36	36	25	310	2.00
695	3	5	36	36	20	295	2.10
696	3½	5	36	36	15	320	2.30
697	4	5	36	36	12	305	2.60
698	4½	5	36	36	9	260	3.65

45° AND 90° ELBOWS Socket Joint Cat. No.	Inside Diam. In.	Price Each	Harrington Joint Cat. No.	Price Each	EXTRA COUPLINGS Harrington Joint Cat. No.	Inside Diam. In.	Price Each
699	2	$2.15	705	$2.25	711	2	$0.10
700	2½	2.15	706	2.25	712	2½	.11
701	3	2.20	707	2.35	713	3	.12
702	3½	2.20	708	2.35	714	3½	.14
703	4	2.25	709	2.45	715	4	.16
704	4½	3.00	710	3.25	716	4½	.20

AUSTIN SAFESTEEL ARMORED CONDUCTORS

Safesteel Armored Conductors are of the type of construction known as single strip. The strip is interlocking and does not open on short bends, and it is not springy. Having a small outside diameter and a roller bearing surface makes fishing easier. Galvanized.

ARMORED CABLES

Solid Conductor

Mfrs. No.	No. of Conds.	Size of Each B.&S. Gauge	Outside Diam. In.	Wt.Lb., 1000 Ft.	Std. Coils	Price Per 1000 Ft.
B108	1	8	.450	265	100	**$106.00**
B214	2	14	.570	344	100–250	**104.00**
B212	2	12	.600	390	100–250	**135.00**
B210	2	10	.665	451	100–250	**185.00**
B314	3	14	.600	395	100–250	**138.00**
B312	3	12	.635	445	100–250	**170.00**
B310	3	10	.680	530	100–200	**235.00**
			Stranded Conductor			
B208	2	8	.700	635	100–150	**285.00**
B206	2	6	.955	825	100	**400.00**
B204	2	4	1.090	1020	100	**550.00**
B308	3	8	.795	786	100–150	**375.00**
B306	3	6	1.045	980	100	**500.00**
B304	3	4	1.225	1215	100	**650.00**

LEAD COVERED ARMORED CABLES

Solid Conductor

BL214	2	14	.635	537	100–200	**164.00**
BL212	2	12	.680	606	100–200	**225.00**
BL210	2	10	.740	935	100–150	**275.00**
BL314	3	14	.675	613	100–150	**210.00**
BL312	3	12	.730	845	100–150	**265.00**
BL310	3	10	.790	1042	100–150	**325.00**
			Stranded Conductor			
BL208	2	8	.835	1155	100–150	**420.00**
BL206	2	6	1.560	1350	100	**560.00**
BL308	3	8	.930	1565	100–150	**500.00**

ARMORED LAMP CORD

BC218	2	18	.425	203	100–250	**80.00**
BC216	2	16	.460	222	100–250	**95.00**
BC214	2	14	.540	240	100–250	**130.00**

ARMORED REINFORCED PORTABLE CORD

BP218	2	18	.500	223	100–250	**115.00**
BP216	2	16	.535	240	100–250	**135.00**
BP214	2	14	.615	265	100–250	**175.00**

AUSTIN SAFESTEEL FLEXIBLE CONDUIT

Single Strip Construction

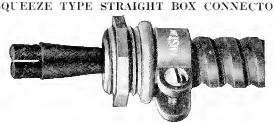
Approved for use anywhere that rigid conduit is permitted, even to embedding in concrete. No lead bushings or finishing ends necessary—can be used in conjunction with rigid conduit and joined to it by use of combination couplings—provides the only method for installing concealed raceways in old buildings.

Mfrs. No.	Size Diam., In. Inside	Size Diam., In. Outside	Wt.Lb. 1000 Ft.	Std. Coils	Price Per 100 Ft.
BF516	5/16	.535	200	250	**$5.00**
BF380	⅜	.590	280	250	**7.50**
BF120	½	.905	540	100	**10.00**
BF340	¾	1.030	680	50	**13.00**
BF100	1	1.375	1135	50	**21.00**
BF114	1¼	1.655	1350	50	**26.00**
BF112	1½	1.875	1800	50	**35.00**

AUSTIN BOX CONNECTORS

For Flexible Steel Conduit and Steel Armored Conductors—N. E. C. Standard

SQUEEZE TYPE STRAIGHT BOX CONNECTOR



For Armored Cord Nos. 18C and 16C.

Mfrs. No	Size In.	Diam. Opn'g for Cable, In.	Size K. O.	Std. Pkg.	Wt.Lb. Per 100	Price Per 100
***2050**	¼	½	⅜	100	4	**$7.50**
For Armored Cord Nos. 18P and 16P, 5/16 inch; Flexible Metallic Conduit.						
***2052**	5/16	9/16	⅜	100	4	**7.50**
For Armored Conductors Nos. 14W2, 12W2, 10W2, 14W3, 12W3, 10W3, 14W2L, 14W3L and 14C, 14P Cord; Flexible Metallic Conduit ⅜ inch.						
2053	⅜	11/16	½	1000	9	**7.50**
For Armored Conductors Nos. 8W2, 8W3, 12W2L, 10W2L and 12W3L.						
2053-A	⅜	13/16	½	100	12	**9.00**
For Armored Conductors Nos. 6W2, 6W3, 8W2L, 10W3L; Flexible Metallic Conduit ½ inch.						
2054	½	1	½	100	13	**9.00**
For Armored Conductors Nos. 4W2, 4W3, 6W2L, 8W3L; Flexible Metallic Conduit ¾ inch.						
2055	¾	1⅛	¾	100	21	**12.00**
For Flexible Metallic Conduit 1 inch.						
2056	1	1⅜	1	50	25	**18.00**
For Flexible Metallic Conduit 1¼ inch.						
2057	1¼	1¾	1¼	50	40	**25.00**
For Flexible Metallic Conduit 1½ inch.						
2058	1½	2⅛	1½	50	65	**35.00**
For Flexible Metallic Conduit 2 inch.						
2059	2	2⅝	2	50	86	**55.00**

*No locknut furnished. These connectors are threaded to fit standard ⅜ inch sockets.

LOXALL STRAIGHT BOX CONNECTOR

Adapted to all armored cables and flexible metallic conduits of 11/16 inch outside diameter or smaller. Galvanized.

For Armored Conductors Nos. 14W2, 12W2, 10W2, 14W3, 12W3, 10W3, 14W2L, 14W3L and 14C, 14P Cord; Flexible Metallic Conduit ⅜ inch.

Mfrs. No.	Size In.	Diam. Opn'g for Cable, In.	Size K. O.	Std. Pkg.	Wt.Lb. Per 100	Price Per 100
3053	⅜	11/16	½	1000	13	**$7.50**

WEDGE TYPE STRAIGHT BOX CONNECTORS

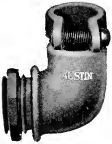
Adapted to all armored cables and flexible metallic conduits of 11/16 inch outside diameter or smaller. Galvanized.

For Armored Conductors Nos. 14W2, 12W2, 10W2, 14W3, 12W3, 10W3, 14W2L, 14W3L and 14C, 14P Cord; Flexible Metallic Conduit ⅜ inch.

Mfrs. No.	Size In.	Diam. Opn'g for Cable, In.	Size K. O.	Std. Pkg.	Wt.Lb. Per 100	Price Per 100
4053	⅜	11/16	½	1000	10	**$7.50**

AUSTIN BOX CONNECTORS

For Flexible Steel Conduit and Steel Armored Conductors—N. E. C. Standard



SQUEEZE TYPE ANGLE BOX CONNECTOR

45° and 90° Connectors

The angle type of connector is also of the Squeeze type and its principle is the same as the straight type, permitting easy adjustment of the armor into the connector and connector into the box. Galvanized.

For Armored Conductors Nos. 14W2, 12W2, 10W2, 14W3, 12W3, 10W3, 14W2L, 14W3L and 14C, 14P Cord; Flexible Metallic Conduit, ⅜ inch.

Mfrs. No.	Size In.	Diam. of Op'g for Cable, In.	Size K.O.	Degree	Std. Pkg.	Wt.Lb. Per 100	Price Per 100
2065	⅜	$\frac{11}{16}$	½	45	100	12	**$12.00**

For Armored Conductors Nos. 14W2, 12W2, 10W2, 14W3, 12W3, 10W3, 14W2L, 14W3L and 14C, 14P Cord; Flexible Metallic Conduit, ⅜ inch.

2066	⅜	$\frac{11}{16}$	½	90	100	13	**16.00**

For Armored Conductors Nos. 8W2, 8W3, 12W2L, 10W2L, 12W3L.

2066-A	⅜	$\frac{13}{16}$	½	90	100	17	**20.00**

For Armored Conductors Nos. 6W2, 6W3, 8W2L, 10W3L; Flexible Metallic Conduit ½ inch.

2067	½	1	½	45	100	16	**15.00**

For Armored Conductors Nos. 6W2, 6W3, 8W2L, 10W3L; Flexible Metallic Conduit ½ inch.

2068	½	1	½	90	100	18	**20.00**

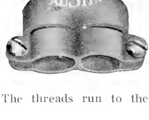
For Armored Conductors Nos. 4W2, 4W3, 6W2L, 8W3L; Flexible Metallic Conduit ¾ inch.

2069	¾	1⅛	¾	45	50	22	**25.00**

For Armored Conductors Nos. 4W2, 4W3, 6W2L, 8W3L; Flexible Metallic Conduit ¾ inch.

2070	¾	1⅛	¾	90	50	24	**40.00**

DUPLEX SQUEEZE TYPE



It allows two armored cables into the same knockout. The openings for conductors are $\frac{11}{16}$ inch, the same as for standard ⅜ inch single connectors and will accommodate armored cables whose outside diameter is $\frac{21}{32}$ inch or smaller. Galvanized. The threads run to the shoulder.

For two Nos. 14W2, 12W2, 10W2, 14W3, 12W3, 10W3, 14W2L, 14W3L and 14C, 14P Cord; ⅜ inch Flexible Metallic Conduit.

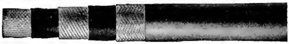
Mfrs. No.	Size In.	Diam. Opn'g for Cable, In.	Size K. O.	Std. Pkg.	Wt.Lb. Per 100	Price Per 100
2253	⅜	$\frac{11}{16}$	½	100	22	**$18.00**

NON-METALLIC FLEXIBLE CONDUIT

National Electrical Code Standard

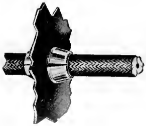
Made in accordance with the requirements of the National Electrical Code and regularly inspected and approved by the Underwriters' Laboratories, Inc.

Is highly flexible, waterproof and of high insulating qualities; tubing is coated with a fire resistive and moisture proof compound and affords excellent protection for wires and cables.



Diam. In. Nominal	Inches Actual	Feet Per Coil	Wt. Lbs. Per 1000 Ft.	Price Per Foot
$\frac{7}{32}$	0.265	250	50	**$0.05½**
¼	.313	250	58	**.06**
⅜	.438	250	75	**.09**
½	.563	200	90	**.12**
⅝	.688	200	120	**.15**
¾	.813	150	196	**.18**
1	1.063	100	250	**.25**
1¼	1.313	100	400	**.33**
1½	1.563	Odd Lengths	480	**.40**
1¾	1.813	Odd Lengths	590	**.47**
2	2.063	Odd Lengths	750	**.55**
2¼	2.313	Odd Lengths	810	**.65**

UNIVERSAL BUSHINGS



For holding flexible tubing securely in switch boxes, cabinets, junction boxes and in all ½-inch conduit knockouts.

Approved by National Board of Fire Underwriters.

Mfrs. No.	Size Inches K. O.	Size Inches Tubing	Carton	Std. Pkg	Price Per 1000
1	⅝	¼ & $\frac{5}{16}$	100	1000	**$30.00**
2	⅞	¼ & $\frac{5}{16}$	100	1000	**35.00**
3	⅝	$\frac{7}{32}$ & ⅜	100	1000	**30.00**
4	⅞	$\frac{7}{32}$ & ⅜	100	1000	**35.00**

LOOM FASTENERS

H & H LOOM FASTENERS

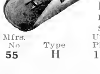
For ¼ Inch Loom

Mfrs. No	Carton	Std. Pkg	Wt Oz. Std Pkg	Price Per 100
1066	100	100	4	**$2.00**

For ⅜ Inch Loom, Open Type

1091	100	100	5	**2.00**

AUSTIN TYPE H LOOM LOCK



Used to securely hold non-metallic flexible conduit (loom) in the knockouts of metal cabinets, cutout boxes, junction and switch boxes as per the code requirements. Can be installed from outside or inside of box.

Mfrs. No	Type	Unit Pkg.	Std Pkg.	Wt.Lb. Per 1000	Price Per 1000
55	H	100	5000	6½	**$15.00**

NO. 500 WIREMOLD CONDUIT AND FITTINGS

Wiremold Conduit is made in both two wire size, No. 500, and four wire size, No. 700, is furnished in ten foot lengths and is designed for surface wiring exclusively. (See separate listing of No. 700 Wiremold Conduit and Fittings.)

Mfrs. No.	Unit Pkg Ft.	Std. Pkg.	Wt. Lbs.	Price Per 100 Ft.
500	100	.....	33	**$10.58**

Four wire size No. 700 Wiremold Conduit is same width as three wire size and assembles with No. 500 Wiremold Fittings through use of 4 wire Connector.

4 WIRE CONNECTOR

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
701	10	100	7	**$0.12**

No. 502

MOLDING BUSHING

Should be used wherever No. 500 Wiremold enters fitting.

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs.	Price Each
502	50	500	5	**$0.03**

SUPPORTING STRAP

Designed for use in cases where exceptionally rigid support is required for No. 500 Wiremold Conduit.

No. 501

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs.	Price Each
504	50	500	5	**$0.03**

ONE HOLE SUPPORTING STRAP

No. 505

Designed to support No. 500 Wiremold in the middle of lengths where runs are made on concrete or tile surfaces.

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs.	Price Each
505	50	500	9	**$0.04**

CONNECTION COVER

Designed to cover cracks between adjoining lengths of No. 500.

No. 506

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs.	Price Each
506	50	500	5	**$0.03**

90° FLAT ELBOW

No. 511

Wiremold Elbows are made up of a base plate, which is provided with hole for No. 8 flat head supporting screw and tongues for coupling base with No. 500 Wiremold, and a cover piece which is fastened in place by snapping its end ribs over the capping of No. 500 Wiremold.

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs.	Price Each
511	5	100	8	**$0.20**

45° FLAT ELBOW

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lb..	Price Each
512	5	50	4	**$0.20**

No. 512

NO. 500 WIREMOLD CONDUIT FITTINGS

INTERNAL ELBOW

No. 517

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs.	Price Each
517	5	100	14	**$0.24**

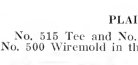
EXTERNAL ELBOW

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs.	Price Each
518	5	100	8	**$0.20**

No. 518

PLAIN TEE

No. 515 Tee and No. 516 Cross assemble with No. 500 Wiremold in the same manner as the Elbows. Ample room is provided in them for two extra large splices or three splices of the average size.


No. 515

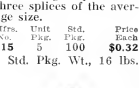
Mfrs. No.	Unit Pkg.	Std. Pkg.	Price Each
515	5	100	**$0.32**

Std. Pkg. Wt., 16 lbs.

PLAIN CROSS

Mfrs. No.	Unit Pkg.	Std. Pkg.	Price Each
516	5	50	**$0.36**

Std. Pkg. Wt., 11 lbs.


No. 516

No. 519

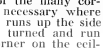
CORNER BOX

Designed to provide in a single fitting, for most of the many corner combinations necessary where No. 500 Wiremold runs up the side wall and must be turned and run close up in the corner on the ceiling or vice versa.

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs.	Price Each
519	5	50	11	**$0.36**

OPEN WORK COUPLING

For use where a tap must be made from No. 500 Wiremold to open work.


No. 588

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs.	Price Each
588	5	20	4	**$0.38**

ONE PIECE ROSETTE

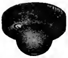
No. 521

Steel rosette in which drop cords must be spliced to circuit wires as no contact block is provided.

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs.	Price Each
521	5	100	21	**$0.35**

NO. 500 WIREMOLD CONDUIT FITTINGS

TWO PIECE ROSETTE


No. 522

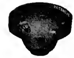
Same as No. 521 except equipped with eontact bloek having terminals for tapping cords from eireuit wires.

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs.	Price Each
522	5	100	26	**$0.62**

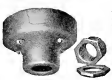
⅛ INCH FIXTURE ROSETTE

Same as No. 522 save that it is equipped with an insulating bushing tapped for ⅛ inch fixture stems.

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs.	Price Each
523	5	50	15	**$1.05**


No. 523

COMBINATION ROSETTE


No. 524

Has a contaet block for taps. Provided with a fiber washer to hang drop eords up to No. 12, and ehase nipple with locknut.

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs.	Price Each
524	5	50	17	**$1.01**

RECEPTACLE BASE

Equipped with a fluted ring so that soekets and similar deviees of fluted type may be mounted upon it. Diameter, 2½ inch.

Mfrs. No	Unit Pkg.	Std. Pkg.	Wt. Lbs.	Price Each
525	5	100	30	**$0.70**

No. 525

KEYLESS RECEPTACLE

No. 526

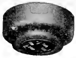
Designed for use at lighting outlets or at any point where a screw type reeeptacle is desired. Diameter, 2½ ineh.

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs.	Price Each
526	5	100	31	**$1.02**

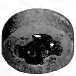
ATTACHMENT PLUG

10 amp. attaehment plug base with Double T slots for plug eaps having either tandem or parallel blades. Diameter, 2½ ineh.

Mfrs. No	Unit Pkg.	Std. Pkg.	Wt. Lbs.	Price Each
527	5	100	31	**$1.16**


No. 527

2½ INCH OUTLET BOX


No. 532

Designed as a base for 5 ampere snap switches, but may be used as a junetion or pull box. ⅝ ineh deep, has ⅞ inch knoekout.

Mfrs. No	Unit Pkg.	Std. Pkg.	Wt. Lb.	Price Each
532	5	100	17	**$0.42**

NO. 700 WIREMOLD CONDUIT

Inside Dimensions, $\frac{17}{32}$ In. High, $\frac{9}{16}$ In. Wide

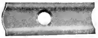
No. 700

No. 700 Wiremold Conduit System for surfaee wiring is designed for use in large installations requiring eireuits of four wires, such as faetories, offiee buildings and the like. Is also ideal for signal and eall systems. No. 700 Wiremold Conduit is furnished in standard ten foot lengths with one coupling to each length, like pipe.

Mfrs. No.	Unit Pkg. Feet	Wt. Lb. Unit Pkg.	Price Per 100 Feet
700	100	36	**$13.30**

NO. 700 WIREMOLD CONDUIT FITTINGS

*BASE COUPLING


No. 5701

One No. 5701 is furnished with each length of No. 700 Wiremold Conduit but extra eouplings must be used where short lengths are installed.

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
5701	50	500	9	**$0.04**

BUSHING

No. 702 Bushing should be used to proteet wires where No. 700 Wiremold Conduit enters fittings.

No. 702

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
702	50	500	2	**$0.03**

*CLIP

No. 5703

No. 5703 Clip provides concealed support in middle of lengths and for lining up runs.

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
5703	50	500	8	**$0.04**

ONE OR TWO HOLE STRAP

No. 704 One or Two Hole Strap is designed for use with No. 700 Wiremold Conduit. By breaking off the seored leg it may be used as a One Hole Strap.

No. 704

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
704	50	500	16	**$0.04**

*GROUND COUPLING

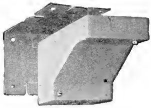
No. 5709

No. 5709 is a standard, serewless ground eoupling for Wiremold Conduit.

Mfrs. No	Unit Pkg.	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
5709	5	100	2	**$0.06**

*CORNER BOX

No. 5719 is designed to provide in a single fitting, with abundant splice room, for the many eorner junctions and other combinations sueh as "twisted elbow," "twisted tee," "twisted eross" that ean be made with Wiremold Conduit.

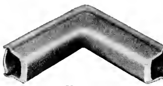

No. 5719

Provided with two knockouts for ½ inch pipe or BX eonneetor.

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
5719	5	50	21	**$0.40**

*__Note.__—For use with both No. 500 or No. 700 Wiremold Conduit and the new large size fittings listed are equipped with double twistouts making it possible to use them interehangeably with **No.** 500 or No. 700 Wiremold Conduit.

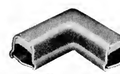
NO. 700 WIREMOLD CONDUIT FITTINGS



No. 5717

*ELBOWS

Nos. 5711-17-18 Elbows consist of base plates provided with tongues for slip joint connections with No. 500 or No. 700 Wiremold Conduit and cover pieces as shown. The cover pieces will fit No. 500 Wiremold Conduit, and by breaking off the crescent - shaped twistouts will fit No. 700 Wiremold Conduit. The covers are fastened into place by snapping their curls over the capping of No. 500 or No. 700 Wiremold Conduit. These elbows are designed for use as "pull boxes." Wires cannot be fished around them with their covers in place.



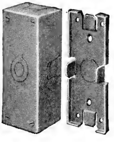
No. 5711

No. 5718

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
5711	10	100	12	**$0.22**
5717	10	100	17	**.26**
5718	10	100	11	**.22**

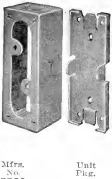
*UTILITY BOX

No. 5728 is designed to provide in a single fitting, with abundant splice room, for many uses, namely: "tee," "cross," "junction box," "rosette" for drop cords and fixtures. Provided with a knockout for ½ inch pipe or BX connector. By breaking out the knockout for ½ inch pipe or BX connector and using any standard adapter it may be used to hang either ⅜ or ½ inch fixtures.



Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
5728	10	100	39	**$0.32**

*UTILITY BOX
Condulet Type



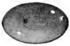
Provided with a knockout for ½ inch pipe or BX connector. The side tongues are turned up inside the cover but can be bent down to plane of base for connecting Wiremold Conduit. The cover piece has four double twistouts for use with both No. 500 or No. 700 Wiremold Conduit and an opening which will take all standard ½ inch covers of the condulet type.

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
5729	10	100	35	**$0.30**

*__Note.__—The new large size fittings listed are equipped with double twistouts making it possible to use them interchangeably with No. 500 or No. 700 Wiremold Conduit.

NO. 700 WIREMOLD CONDUIT FITTINGS

*2¼ INCH BLANK COVER



No. 5731

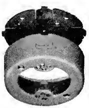
No. 5731 is designed for use with No. 5733 box when used as a pull or junction box or for hanging light pendant fixtures with large stems, as it is provided with a ½ inch pipe knockout.

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
5731	5	100	5	**$0.15**

*3 INCH OUTLET BOX

Outside dimensions: Diameter, 3 inches. Height, 1 inch.

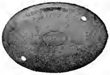
Device screw spacing: 1 15/32 inch, 1⅝ inch, 1 23/32 inch, 1 27/32 inch centers. Holes are arranged so that tumbler switches will operate vertically. Can be used with both No. 500 or No. 700 Wiremold Conduit.



No. 5733

Mfrs. No	Unit Pkg.	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
5733	5	100	27	**$0.66**

*4 INCH BLANK COVER



No. 5736

No. 5736 is for use with boxes Nos. 5737, 5738 and 5739 where they are used as pull or junction boxes or for hanging ½ inch fixtures or drop cords, as it is provided with a ½ inch pipe knockout.

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
5736	5	100	13	**$0.18**

*4¾ INCH EXTENSION BOX

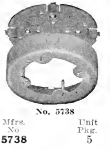
Outside dimensions: Diameter, 4¾ inches. Height, 1 inch.

Fixture and device screw spacings on 2¾ and 3½ inch centers. Both base and cover are split. Can be used with both No. 500 or No. 700 Wiremold Conduit. No. 5737 is primarily designed for use in extending No. 500 or No. 700 Wiremold Conduit from existing outlets. Special slots for attaching to 3¼ and 4 inch boxes. With the use of No. 5736 Wiremold Blank Cover this fitting may be used as a junction box.

No. 5737

Mfrs. No	Unit Pkg.	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
5737	5	50	28	**$0.78**

*4¾ INCH FIXTURE BOX



No. 5738

Outside dimensions: Diameter, 4¾ inches. Height 1 inch.

Fixture and device screw spacings on 2¾ and 3½ inch centers.

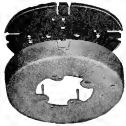
Base has four holes for fixture studs and five knockouts for ½ inch pipe or BX connectors.

Mfrs. No	Unit Pkg.	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
5738	5	50	30	**$0.62**

*__Note.__—For use with both No. 500 or No. 700 Wiremold Conduit and the new large size fittings listed are equipped with double twistouts making it possible to use them interchangeably with No. 500 or No. 700 Wiremold Conduit.

NO. 700 WIREMOLD CONDUIT FITTINGS

*6⅜ INCH FIXTURE BOX



No. 5739

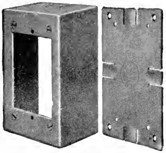
Outside diameter, 6⅜ in. Height, 1 in.

Fixture and device screw spacings on 2¾ and 3½ in. centers.

Base has four holes for fixture studs and five knockouts for ½ inch pipe.

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
5739	5	20	22	**$0.62**

*SURFACE TYPE SWITCH BOX



No. 5748

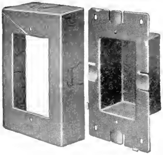
No. 5748 is designed for installing standard switches and receptacles on the surface, making it unnecessary to channel walls.

No. 5748 consists of a base plate with four holes for No. 8 flat head supporting screws and a knockout for ½ in. pipe or BX connector, also four tongues for slip joint connections with both No. 500 or No. 700 Wiremold Conduit, and a cover piece as shown.

No. 5748 is an ideal fitting for use with call or signal systems.

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
5748	1	20	13	**$1.00**

*FLUSH SWITCH AND RECEPTACLE BOX



No. 5749

No. 5749 consists of a switch box with four holes for No. 8 flat head supporting screws and four tongues for slip joint connections with both No. 500 or No. 700 Wiremold Conduit, and a cover piece as shown provided with an opening in the top with screw holes against which all standard flush switches or receptacles may be mounted.

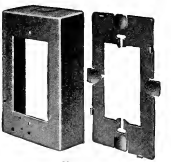
No. 5749 Box is made in single gang only. See description of No. 5752 and No. 5753 Adapters in opposite column for additional gangs.

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
5749	1	20	13	**$1.26**

***Note.**—For use with both No. 500 or No. 700 Wiremold Conduit and the new large size fittings listed are equipped with double twistouts making it possible to use them interchangeably with No. 500 or No. 700 Wiremold Conduit.

NO. 700 WIREMOLD CONDUIT FITTINGS

*FLUSH SWITCH AND RECEPTACLE ADAPTERS



No. 5751

Nos. 5751, 5752 and 5753 are for use in picking up and extending a circuit in hoth No. 500 or No. 700 Wiremold Conduit from existing outlets.

Nos. 5752 two gang, and No. 5753 three gang Adapters are used the same as No. 5751 single gang.

The top plates of these Adapters serve the purpose of a surface mat for Wiremold Conduit runs from new and old boxes.

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
5751	1	20	9	**$1.04**
5752	1	10	7	**1.74**
5753	1	10	9	**1.84**

No. 5781

*Nos. 5781-5781-A Box Connectors.

*Nos. 5782-5782-A Pipe Coupling.

Above for ½ or ¾ inch pipe.

No. 5782

Mfrs. No.	Size In.	Unit Pkg.	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
5781	½	5	50	3	**$0.32**
5781-A	¾	5	50	4	**.32**
5782	½	5	50	4	**.48**
5782-A	¾	5	50	7	**.48**

*COMBINATION CONNECTOR

For Nos. 500 and 700 Wiremold Conduit.

Mfrs. No.	Wt.Lb. Std.Pkg.	Price Each
5785	8	**$0.58**

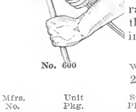
Unit Pkg., 5.
Std. Pkg., 50.

No. 5785

Mfrs. No	Unit Pkg.	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
5785	5	50	8	**$0.58**

***Note.**—Equipped with douhle twistouts for use interchangeably with Nos. 500 or 700 Wiremold Conduit.

WIREMOLD BENDERS



No. 600

The New Wiremold BENDER is a very light but very husky little hand tool that bends or offsets Wiremold on close, easily fished radii with only a fraction of the effort required for ½ inch conduit.

Handle is not furnished with this tool. Use about 2 feet length of ½ inch pipe.

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs.	Price Each
600	1	10	25	**$3.80**

NATIONAL METAL MOLDING

METAL MOLDING

"National" Metal Molding is listed by the Underwriters' Laboratories as an approved raceway for surface wiring. By the rules of the National Electrical Code, it may be used to carry a maximum of four No. 14 B and S single braid wires with a voltage of 300 or less, provided no single circuit is loaded to exceed 1320 watts.

No. 333—Two, Three or Four Wires

Made in two pieces—a Base that is fastened to the wall or ceiling and in which the wires are laid, and a Capping which is then snapped on as a cover. Whenever possible, the elbows and other fittings are made with a base and a cover in the same general way.

Metal Molding is made in two sizes—No. 333, which will receive a maximum of four No. 14 or three No. 12 wires and No. 222, which will receive two wires only. No. 333 is $\frac{3}{4}$ inch by $\frac{7}{16}$ inch, and

No. 222—Two Wires Only

No. 222 is $\frac{3}{4}$ inch by $\frac{5}{16}$ inch. No. 333 is the size which is used mostly largely. No. 222 is preferred for certain kinds of work. Both sizes are made in sections 8 ft. 4 inches long—short enough to stand upright in almost any room and to be handled conveniently under all conditions.

For shipping purposes the base and the capping of Metal Molding are tied in bundles containing 12 lengths of each, thus making unit packages of 100 feet of complete molding. The various fittings are packed in convenient cardboard boxes in the quantities indicated in the several lists.

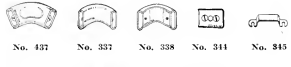
Mfrs. No.	Unit Package Ft.	Standard Package Ft.	Wt. Lbs Std. Pkg.	Price Per 100 Ft.
222	100	1000	250	**$13.00**
333	100	1000	400	**16.00**

NATIONAL METAL MOLDING

ELBOWS AND FITTINGS

No. 269 No. 334 No. 335 No. 336

No. 337 No. 338 No. 344 No. 345



Nos. 367—2 Wire 368—3 Wire No. 404 No. 376 No. 377

No. 401 No. 402 No. 403 No. 414 No. 417

No. 419-B No. 420-B No. 421

Mfrs. No.	Description	Unit Pkg.	Std. Pkg.	Price Per 100
269	Wood Molding or Open-work Coupling	10	10	**$30.00**
334	Cross	1	30	**34.00**
335	Tee	1	30	**28.00**
336	90° Elbow	30	60	**22.00**
437	45° Elbow	1	20	**22.00**
337	External Elbow	30	30	**22.00**
338	Internal Elbow	30	60	**22.00**
344	Coupling	50	100	**5.00**
345	Fastening Strap	100	100	**1.50**
367	2-Wire Cover for No. 404	1	10	**20.00**
368	3-Wire Cover for No. 404	1	10	**20.00**
376	Corner Box	1	10	**50.00**
377	Bushing	50	100	**7.00**
401	Box Connector	10	20	**30.00**
402	Conduit Connector	5	20	**30.00**
403	Angle Conduit Connector	1	10	**36.00**
404	Open-work connector (with No. 367 or 368)	1	10	**36.00**
414	Armored Cable Connector	1	10	**40.00**
417	Angle Box Connector	1	10	**36.00**
419B	$\frac{3}{16}$x4 in. Toggle Bolt	50	50	**17.00**
420B	$\frac{3}{16}$x3 in. Toggle Bolt	100	100	**6.70**
421	Lead Expansion Shield	25	25	**13.00**

NATIONAL METAL MOLDING
DEVICES AND BOXES

No. 348

No. 356

No. 360

No. 392

No. 395

No. 397

No. 400

Nos. 430—½" 430-A—¾"

No. 339

No. 341

No. 342

No. 363

No. 363-A

No. 363-B

No. 438

Nos. 363-1½" 366-6"

No. 441

Mfrs. No.	Description	Unit Pkg.	Std. Pkg.	Price Per 100
339	Drop Cord Box	1	20	$50.00
341	Junction Box	1	20	50.00
342	Surface Device Box	1	20	50.00
348	Splice Rosette	10	20	30.00
356	Keyless Socket	10	20	76.00
360	Attachment Receptacle	10	10	82.00
363	4½ In. Split Plate	10	10	50.00
363A	4½ In. Outlet Cover	10	10	30.00
363B	4½ In. Split Canopy Base	10	10	40.00
365	4½ In. Solid Canopy Base and Plate	10	20	70.00
366	6 In. Canopy Base and Plate	10	10	100.00
392	Snap Switch	10	10	90.00
395	Chain Pull Socket	10	10	140.00
397	Key Socket	10	10	88.00
400	Receptacle Base	5	50	36.00
430	½ In. Fixture Rosette	10	10	80.00
430A	¾ In. Fixture Rosette	10	10	80.00
438	Flush Device Box	10	10	80.00
441	Flush Device Adapter	10	10	54.00

NATIONAL METAL MOLDING
FITTINGS FOR NO. 222 METAL MOLDING

No. 234

No. 235

No. 236

No. 237

No. 238

No. 239

No. 244

No. 223

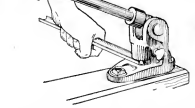
No. 300

No. 301

Mfrs. No	Description	Unit Pkg.	Std. Pkg.	Price Per 100
223	Clip for Capping	100	1000	$ 1.60
234	Cross	1	10	40.00
235	Tee	1	20	28.00
236	90° Elbow	20	100	22.00
237	45° Elbow	1	20	22.00
238	Internal Elbow	10	50	22.00
239	External Elbow	10	50	22.00
244	Coupling	20	100	5.00
300*	Adapter for 333 Fittings	10	100	7.00
301	Box Connector	1	20	24.00

*By using No. 300 Adapter, No. 222 Molding may be connected with any of the fittings and devices used with No. 333.

PUNCH FOR NO. 333 MOLDING



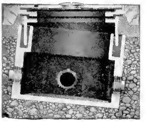
Ready to connect Molding to Fitting

Molding connected to Fitting

Mfrs. No.	Shipping Wt.	Price Each
418	12 Lbs.	$16.00

FULLMAN FLOOR OUTLETS

ADJUSTABLE COVER TYPE

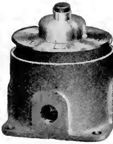


Used primarily to effect a saving in conduit and wire, and to improve the appearance of a wiring installation by avoiding the use of wall or ceiling outlets. This type of box provides automatic universal adjustment of covers with low installation cost, and with permanent protection from leaking or imperfect connection between box and cover. Groove ring construction of body also provides vertical adjustment of covers so that there are no construction conditions these outlets cannot fulfill. When cover is finally set, a sealing cement (furnished) is poured into groove of box body, where it hardens and unites both parts electrically and mechanically. Combination adjusting and brass flange rings are furnished in 1½ inch (standard), 2½, 2¾ and 3⅜ inch depths, thus providing a range of adjustment of about 2½ inches.

The box bodies are cast iron, sherardized, tapped with four ½ inch conduit holes, three of which are plugged.

Illustration shows box body out of level, which is the usual condition, but with cover perfectly aligned with finished floor. Brass flange ring shown, protects floor edge from chipping upon repeated removal of brass cover plate.

NO. 401



Height to top of cover plate is 3¾ inches when standard box No. 402 and No. 405 adjusting ring are used, and 4¼ inches when deep box No. 404 is used. Brass cover plate is 4¼ inches in diameter with threaded opening for 2 inch flush brass plug or No. 466 nozzle. Can also be furnished with ½ inch flush brass plug for use with Nos. 465 or 467 nozzles or ½ inch pipe extension. Complete outlet consists of either No. 402 or 404 body; choice of adjusting rings Nos. 405 to 408; sealing cement, rubber gasket and brass cover plate with two inch flush brass plug for No. 466 nozzle.

Mfrs. No.	Wt. Lbs. Each	Price Each
401	5	$4.50

EXTRA NOZZLES

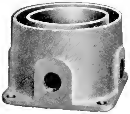
Cast brass bell cap threaded to fit two inch opening in No. 410 cover plate. Protects porcelain plug from injury when inserted in receptacle. Illustrated above with No. 401 Outlet.

Mfrs. No.	Wt. Lbs. Each	Price Each
466	¼	$1.00

Nozzles are accessories and are **not included** in list prices of complete outlets.

FULLMAN FLOOR OUTLET PARTS

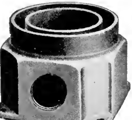
STANDARD TYPE BOX BODY



Can be tapped for ½, ¾ or 1 inch conduit with room for bushing inside.

Mfrs. No.	Hght. In.	Inside Open, In.	Wt Lbs. Each.	Price Each
402	3½	3¼	3½	$2.27

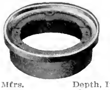
DEEP TYPE BOX BODY



Can be tapped for conduits up to 1½ inches with room for bushings, or for 2 inch conduits, without room for bushing.

Mfrs. No.	Hght. In.	Inside Open, In.	Wt. Lbs. Each.	Price Each
404	4	3¼	6¼	$2.27

COMBINATION ADJUSTING RING AND BRASS FLANGE RING

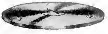


Furnished as standard with all outlets having 4¼ inch cover plates. No. 405 1½ inches deep (standard). Rings are interchangeable and give a range of about 2½ inches.

Mfrs. No.	Depth, In. Over All	Wt. Lbs. Each	Price Each
405	1½	1	$0.50
406	2½	1¼	.50
407	2¾	1½	.50
408	3⅜	1¾	.50

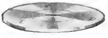
BRASS COVER PLATES

No. 409 has ½ inch opening for Nos. 465 and 467 nozzles, No. 471 flush brass plug, or ½ inch pipe extension.



No. 409

No. 410 has 2 inch opening in center for No. 466 nozzle or No. 472 flush brass plug.



No. 410

Mfrs. No.	Diam. In.	Opening In.	Wt Lbs. Each	Price Each
409	4¼	½	9/16	$1.06
410	4¼	2	¾	1.56

BRASS OUTLET NOZZLES

Fits two inch opening in No. 410 cover plate; protects plugs from injury.

Mfrs. No.	Wt. Lbs. Each	Price Each
466	¼	$1.00

Threaded to fit ½ inch conduit hole in No. 409 cover plate.

Mfrs. No	Wt. Lbs. Each	Price Each
467	¼	$1.00

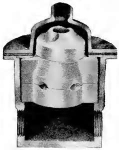
Threaded to fit ½ inch conduit hole in No. 409 cover plate. The two openings are for wire extensions.

Mfrs. No.	Wt. Lbs. Each	Price Each
465	¼	$1.00

FULLMAN FLOOR OUTLETS
NON-ADJUSTABLE TYPES

Design and construction is ideal, having few parts, small outside dimensions, but ample room inside for wiring. Has sherardized box body tapped with four half-inch conduit holes (one in each side and two in bottom), three of which are plugged. Outlet fitted complete with Hubbell receptacle and bell nozzle. The receptacle is locked in position with a flat steel ring which also serves as a support for the nozzle or flush brass plugs This construction permits use of only one rubber gasket.

NO. 477 OUTLET

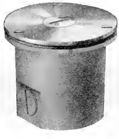


Height to top of cover plate, 3⅛ inches; cover plate is 3½ inches in diameter with 2-inch opening for nozzle or flush brass plug. Consists of box body; porcelain plug and receptacle; flat steel ring; rubber gasket; brass cover plate; flush brass plug and bell nozzle.

Mfrs. No.	Diam. of Box Body	Std. Pkg. Outlets	Wt. Lbs. Each	Price Each
477	2¾	25	2½	**$4.00**

NO. 490 OUTLET

Height to top of cover plate, 3⅛ inches; cover plate is 3½ inches in diameter with tapped hole for ½-inch flush brass plug. Consists of box body; brass cover plate; rubber gasket and ½-inch flush brass plug. Nos. 465 and 467 nozzles can be used in cover plate.



Mfrs. No.	Diam. of Box Body	Std. Pkg. Outlets	Wt. Lbs. Each	Price Each
490	2¾	25	1¾	**$2.20**

SEPARATE PARTS

Mfrs. No.	Description	Wt. Lbs. Each	Price Each
478	Porcelain Plug and Receptacle	¼	**$0.60**
479	Brass Bell Nozzle	⅛	**.80**
480	Two Inch Flush Brass Plug	⅛	**.25**
481	Box Body	1¼	**1.30**
482	Brass Cover Plate, 1½-inch Tapped Hole	⅜	**.65**
483	Brass Cover Plate, 2-inch Hole	¼	**.70**
484	Rubber Gasket	1/16	**.10**
485	Flat Steel Ring	⅛	**.10**
486	Receptacle Strap	1/16	**.15**
487	Half-inch Flush Brass Plug	1/16	**.15**

Note:—Special brass flange rings can be furnished extra charge if outlets are to be used in granolithic, cement, marble or similar flooring to prevent chipping when cover is removed.

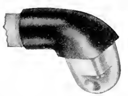
ELECTROLET CONDUIT FITTINGS

TYPE A CONDUIT FITTINGS

For meter loops, motor installations and all combination work. Wires are protected against sharp edges of pipe by ledge on inside of porcelain. Metal base is galvanized finish. Porcelains interchangeable with type B. For inside work only.

Mfrs. No.	Size Pipe In.	No. of Outlets	Carton	Std. Pkg.	Pkg Wt.	Price Each	Porc. Only Each	Porc. Only No
1012	½	2	20	100	21	**$0.20**	**$0.10**	012
1013	½	3	20	100	21	**.20**	**.10**	013
1014	½	4	20	100	30	**.30**	**.15**	024
1022	¾	2	20	100	30	**.30**	**.15**	022
1023	¾	3	20	100	30	**.30**	**.15**	023
1024	¾	4	20	100	30	**.30**	**.15**	024
1032	1	2	10	50	26	**.40**	**.20**	032
1033	1	3	10	50	26	**.40**	**.20**	033
1042	1¼	2	10	30	30	**.55**	**.20**	032
1043	1¼	3	10	30	30	**.55**	**.20**	033

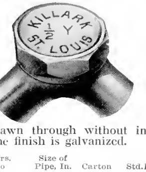
TYPE B CONDUIT FITTINGS



Waterproof service entrance fittings for use on horizontal pipe. Shape of this fitting allows practically straight pull on wires and prevents wires from coming in contact with sharp edges on end of pipe. Metal base black japan or galvanized finish. Black japan furnished unless otherwise specified. Porcelains interchangeable with type A.

Mfrs. No.	Size of Pipe, In.	No. of Outlets	Carton	Std. Pkg.	Wt. Lb Std. Pkg.	Price Each
1112	½	2	10	50	24	**$0.30**
1113	½	3	10	50	24	**.30**
1122	¾	2	10	50	38	**.45**
1123	¾	3	10	50	38	**.45**
1124	¾	4	10	50	38	**.45**
1132	1	2	5	25	35	**.60**
1133	1	3	5	25	35	**.60**

TYPE Y CONDUIT FITTINGS



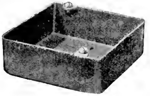
Waterproof fitting for making a neat, right-angle bend in outside conduit. Cap may be screwed on or off with an ordinary monkey wrench; Stillson wrench not necessary. The interior is smooth and rounded so that wires may be drawn through without injuring the insulation. The finish is galvanized.

Mfrs. No	Size of Pipe, In.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
Y1	½	5	50	37	**$0.60**
Y2	¾	5	50	56	**.70**
Y3	1	5	50	70	**.90**

UNION OUTLET BOXES AND COVERS

4-INCH SQUARE BOXES

For ½ Inch or ¾ Inch Conduit



No. 101 Box

No. 101. 4 inches Square, 1½ inches deep, regularly furnished with 8 outlets in sides and 5 in bottom for ½-inch or ¾-inch Conduit. 1 knockout in two opposite sides for ½-inch gas-pipe. Four ¼-inch holes untapped for fixture studs (1½-inch centers), 2 nail holes in sides and 2 in bottom.

Can also be furnished with 3 K.O.'s in two sides and 2 in two opposite sides, for ½-inch Conduit.

Mfrs. No.	Universal Key No.	Packing Case Quan.	Wt., Lbs., Per Case	Price Per 100
101	51151	100	90	**$32.00**

No. 102. 4 inches square, 1½ inches deep, regularly furnished with 10 knock-outs in sides and 5 in bottom for ½-inch Conduit. Four ¼-inch holes untapped for fixture studs (1½-inch centers), 2 nail holes in sides and 2 in bottom.

No. 102 Box

Can also be furnished with 8 outlets in sides and 5 in bottom for ¾-inch Conduit.

Mfrs. No.	Universal Key No.	Packing Case Quan.	Wt, Lbs., Per Case	Price Per 100
102	52151	100	90	**$32.00**

No. 102 Special. Same as regular No. 102 but equipped with one ½ inch and ¾ inch Combination Knockout in center of two opposite sides.

Mfrs. No.	Universal Key No.	Packing Case Quan.	Wt., Lbs., Per Case	Price Per 100
102 Spl.	52151	100	90	**$32.00**

COVERS FOR 4-INCH SQUARE BOXES

No. 101A

No. 101A. Steel cover, raised $\frac{9}{16}$ inch high, 2⅞ inch opening, with gas-pipe flange.

Mfrs. No.	Universal Key No.	Packing Case Quan.	Wt., Lbs., Per Case	Price Per 100
101A	51C55	100	40	**$21.00**

No. 101B. Steel cover, closed, raised ⅝ inch high, with gas-pipe flange.

No. 101B

Mfrs. No.	Universal Key No.	Packing Case Quan.	Wt., Lbs., Per Case	Price Per 100
101B	51C4	100	43½	**$20.00**

No. 101JT

No. 101JT. Steel cover, open center, raised ⅝ inch high, with gas-pipe flange. Lugs drilled and tapped 8-32, mounting screw centers 2⅝ inches and 2¾ inches.

This cover will accommodate all 3¼ inch box covers.

Mfrs. No.	Universal Key No.	Packing Case Quan.	Wt., Lbs., Per Case	Price Per 100
101JT	51C5	100	39	**$22.00**

Black enamel and galvanized are the standard finishes for outlet boxes and covers, and finish should be specified on all orders.

UNION OUTLET BOX COVERS

FOR 4-INCH SQUARE BOXES

No. 102A

No. 102A. Steel cover, raised ¾ inch high, 2⅞ inch opening.

Mfrs. No.	Universal Key No.	Packing Case Quan.	Wt., Lbs., Per Case	Price Per 100
102A	52C48	100	38½	**$16.00**

No. 102B. Steel cover, closed center, raised ⅝ inch high.

No. 102B

Mfrs. No.	Universal Key No.	Packing Case Quan.	Wt., Lbs., Per Case	Price Per 100
102B	52C2	100	50	**$15.00**

No. 102C

No. 102C. Steel cover, raised ⅝ inch high, with special opening for reinforced portable cord. Can also be furnished with porcelain bushing at two cents extra, net.

Mfrs. No.	Universal Key No.	Packing Case Quan.	Wt., Lbs., Per Case	Price Per 100
102C	52C12	100	50	**$17.00**

No. 102D. Steel cover, raised 1¼ inch high. Tapped 6-32 on $3\frac{9}{32}$ inch centers, for single flush device.

No. 102D

Mfrs. No	Universal Key No.	Packing Case Quan.	Wt., Lbs., Per Case	Price Per 100
102D	52C16	100	55	**$24.00**

No. 102E

No. 102E. Steel cover, raised ¾ inch high. Tapped 6-32 on $3\frac{9}{32}$ inch centers, for single flush device.

Mfrs. No.	Universal Key No.	Packing Case Quan.	Wt., Lbs., Per Case	Price Per 100
102E	52C14	100	41	**$22.00**

No. 102ES. Steel cover, raised ½ inch high. Tapped 6-32 on $3\frac{9}{32}$ inch centers, for single flush device.

No. 102ES

Mfrs. No.	Universal Key No.	Packing Case Quan.	Wt., Lbs., Per Case	Price Per 100
102ES	52C13	100	69	**$21.00**

No. 102F

No. 102F. Steel cover, **flat.**

Mfrs. No.	Universal Key No.	Packing Case Quan.	Wt., Lbs., Per Case	Price Per 100
102F	52C1	200	85	**$13.00**

No. 102G. Steel cover, raised 1¼ inches high. Tapped 6-32 on $3\frac{9}{32}$ inch centers. Distance between center lines $1\frac{13}{16}$ inch. For two flush devices.

No. 102G

Mfrs. No.	Universal Key No.	Packing Case Quan.	Wt., Lbs., Per Case	Price Per 100
102G	52C21	100	54	**$29.00**

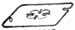
No. 102GS

No. 102GS. Steel cover, raised ¾ inch. Tapped 6-32 on $3\frac{9}{32}$ inch centers. Distance between center lines $1\frac{13}{16}$ inches. For two flush devices.

Mfrs. No.	Universal Key No.	Packing Case Quan.	Wt., Lbs., Per Case	Price Per 100
102GS	52C18	100	37	**$27.00**

Black enamel and galvanized are the standard finishes for outlet boxes and covers, and finish should be specified on all orders.

UNION OUTLET BOX COVERS
FOR 4-INCH SQUARE BOXES


No. 102I

No. **102I.** Steel cover, flat, for all surface mounted devices, with screw centers of ⅞ inch to 1⅞ inches.

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
012I	52C28	100	38½	**$16.00**

No. **102JT.** Steel cover, open, raised ⅝ inch high. Lugs drilled and tapped 8-32, mounting screw centers 2⅝ inches and 2¾ inches.

This cover will accommodate all 3¼ inch box covers.

No. 102JT

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
103JT	52C3	100	38	**$17.00**

No. 102K

No. **102K.** Steel cover flat, 1½ inch opening, with notch. For sign receptacle with lug on porcelain.

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
102K	52C1	200	77	**$16.00**

No. **102KR.** Steel cover, raised ⅝ inch high, 1½ inch opening, with notch. For sign receptacle with lug on porcelain.

No. 102KR

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
102KR	52C35	100	45½	**$16.00**

No. 102L

No. **102L.** Steel cover, flat, 1²¹⁄₃₂ inch opening, with intruding tongue. For Federal sign receptacles.

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
102L	52C44	200	78	**$14.00**

No. **102M.** Steel cover, flat, with with ½ inch knockout. Furnished with two or more knockouts if desired.

No. 102M

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
102M	52C6	200	86	**$16.00**

No. 102MR

No. **102MR.** Steel cover, raised ⅝ inch high, with ½ inch knockout.

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
102MR	52C7	100	49	**$16.00**

No. **102T.** Steel cover, flat, for all standard fluted catch devices.

No. 102T

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
102T	52C39	100	46	**$40.00**

No. 102U

No. 102U. Steel cover, raised ⅝ inch high, 1½ inch opening, with bent-under tongue, for sign receptacle of five notch type.

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
102U	52C36	100	42	**$16.00**

Black enamel and galvanized are the standard finishes for outlet boxes and covers, and finish should be specified on all orders.

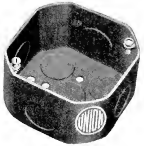
UNION OUTLET BOXES AND COVERS
4-INCH OCTAGON BOXES
For ½-Inch, ¾-Inch or 1-Inch Conduit

No. **103.** 4-inch Octagon, 1½ inches deep, 4 outlets in sides, 5 in bottom, for ½ or ¾ inch conduit only. Ear centers 3½″, tapped 8-32. Four standard ¼ inch holes untapped for fixture studs. (1½″ centers).

Mfrs. No. **103**
Univ. Key No. 54151
Pack Case Qty..... 100
Wt. Lbs. per Case 71
Price per 100 ....**$28.00**

No. **104.** 4-inch Octagon, 2⅛ inches deep, 4 outlets in sides, 5 in bottom. Ear centers 3½″, tapped 8-32. Four standard ¼ inch holes untapped for fixture studs. (1½″ centers). When required **for 1** inch conduit, no outlets or fixture studs are provided in bottom.

Mfrs. No. **104**
Univ. Key No.......54171
Pack Case Qty.. . 100
Wt. Lbs., per Case 85½
Price per 100......**$38.00**



COVERS FOR 4-INCH OCTAGON BOXES

No. 103A

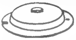
No. **103A.** Steel cover, raised ¾ inch high, 2⅞ inch opening.

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
103A	54C48	100	27	**$15.00**

No. **103B.** Steel cover, raised ⅝ inch high, closed center.

No. 103B

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
103B	54C2	100	38½	**$14.00**


No. 103C

No. **103C.** Steel cover, raised ⅝ inch high, with special opening for reinforced portable cord. Can also be furnished with porcelain bushing at two cents extra, net.

Mfrs. No	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
103C	54C12	100	38½	**$16.00**

No. **103CB.** Brass cover, same as 103C.

No. 103CB

Mfrs. No	Universal Key No	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
103CB	54C12	100	39	**$66.00**

No. 103D

No. **103D.** Steel cover, flat.

Mfrs. No	Universal Key No.	Pckg. Case Quantity	Wt., Lbs per Case	Price per 100
103D	54C1	200	62	**$12.00**

No. **103DH.** Steel cover, flat, 1½ inch opening grooved, screw centers 1⅞ inches, tapped 6-32. For flush floor receptacles.

No. 103DH

Mfrs. No	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
103DH	54C37	100	37	**$13.00**

Black enamel and galvanized are the standard finishes for outlet boxes and covers, and finish should be specified on all orders.

UNION OUTLET BOX COVERS
FOR 4-INCH OCTAGON BOXES

No. 103E

No. **103E.** Steel cover, flat, for all surface mounted devices, with screw centers of ⅞ inch to 1⅞ inches.

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
103E	54C28	200	55	**$15.00**

No. **103G.** Steel cover, flat, 1 21/32 inch opening, with intruding tongue. For Federal sign receptacles.

No. 103G

103G	54C44	200	58	**$13.00**

No. 103H

No. **103H.** Steel cover, raised ⅜ inch high, 1 21/32 inch opening, with intruding tongue. For Federal sign receptacles.

103H	54C31	200	56	**$13.00**

No. **103HB.** Brass cover same as 103H. Was formerly No. 103F.

No. 103HB

103HB	54C31	100	28	**$62.00**

No. 103I

No. **103I.** Steel cover, flat 1⅜ inch opening, screw centers 1 13/16 inches, tapped 6-32. For standard Ames two-crew sign receptacle.

103I	54C33	100	38	**$13.00**

No. **103JT.** Steel cover, raised ⅝ inch high, open, with lugs drilled and tapped 8-32, mounting screw centers of 2⅝ and 2¾ inches.

This cover will accommodate all 3¼ inch box covers.

No. 103JT

103JT	54C3	100	25	**$16.00**

No. 103K

No. **103K.** Steel cover, flat, 1¾-in. opening, screw centers 2⅛ inches. For Arrow E and Bryant No. 59107 and GE071 and GE072.

103K	54C52	200	51	**$12.00**

No. **103KB.** Brass cover, same as 103K.

No. 103KB

103KB	54C52	100	25	**$62.00**

No. 103KR

No. **103KR.** Steel cover, raised ⅝ inch high, 1½ inch opening, with notch. For sign receptacles with lug on porcelain. Was formerly No. 105C.

103KR	54C35	200	55	**$15.00**

No. **103L.** Steel cover, flat, 1½ inch opening, screw centers 1¾ inch. For Benjamin 2-screw sign receptacle.

No. 103L

103L	54C49	200	54	**$13.00**

No. 103M

No. **103M.** Steel cover, flat, with ½ inch knockout.

103M	54C6	200	65	**$13.00**

Covers can be mounted on Nos. **101JT, 102JT, 103JT** or **110JT** Outlet Box Covers.

Black enamel and galvanized are the standard finishes for outlet boxes and covers, and finish should be specified on all orders.

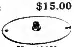
UNION OUTLET BOX COVERS
FOR 4-INCH OCTAGON BOXES

No. 103MR

No. **103MR.** Steel cover, raised ⅝ inch high, with ½ inch knockout in center.

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
103MR	54C7	100	38½	**$15.00**

No. **103N.** Steel cover, flat, with ⅛ inch brass male nipple.


No. 103N

103N	54C22	100	32½	**$25.00**

No. 103O

No. **103O.** Steel cover, flat, with ⅛ inch brass female nipple.

103O	54C23	100	34	**$25.00**

No. **103P.** Steel cover, flat, with ⅜ brass male nipple.

No. 103P

103P	54C24	100	34	**$25.00**

No. 103Q

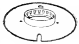
No. **103Q.** Steel cover, flat, with ⅜ inch brass female nipple.

103Q	54C25	100	35	**$25.00**

No. **103S.** Steel cover, flat, 1½ inch opening, with notch. For sign receptacles with lug on porcelain.

No. 103S

103S	54C51	100	38	**$16.00**


No. 103T

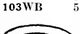
No. **103T.** Steel cover, flat, for all standard fluted catch devices.

103T	54C39	100	41	**$40.00**

No. **103U.** Steel cover, raised ⅝ inch high, 1½ inch opening, with bent under tongue. For sign receptacle of five-notch type.

No. 103U

103U	54C36	100	38	**$15.00**


No. 103V

No. **103V.** Steel cover, raised ⅝ inch high, 2⅛ inch opening, with mounting screw centers of 1⅛ inch to 2-inches. For surface mounted snap switches.

103V	54C54	100	47	**$25.00**

No. **103W.** Steel cover, raised ⅞ inch high, 1 13/16 inch opening, screw centers 2 5/32 inches. For P & S No. 372 receptacle.

No. **103WB.** Brass cover, same as 103W.

No. 103W

103W	54C58	100	38	**$15.00**
103WB	54C58	100	38	**62.00**

No. 103Y

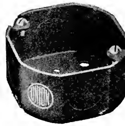
No. **103Y.** Steel cover, flat, open, with 2⅛ inch, 2¼ inch and 2⅜ inch screw centers. For surface mounted devices.

103Y	54C53	100	31	**$22.00**

Covers can be mounted on Nos. **101JT, 102JT, 103JT** or **110JT** Outlet Box Covers.

Black enamel and galvanized are the standard finishes for outlet boxes and covers, and finish should be specified on all orders.

UNION OUTLET BOXES AND COVERS
3¼-INCH OCTAGON BOXES
For ½-Inch and ¾-inch Conduit



No. 106 Box

No. **106**. 3¼ inch Octagon, 1½ inches deep, 4 outlets in sides, 1 in bottom, for ½ inch or ¾ inch conduit. Four standard ¼ inch holes untapped for fixture studs. Screw centers 2¾ inches, tapped 8-32. Can also be furnished with 2 outlets in bottom if required.

Mfrs. No	Universal Key No.	Pckg Case Quantity	Wt., Lbs. per Case	Price per 100
106	24151	100	49	**$24.00**

COVERS FOR 3¼-INCH OCTAGON BOXES

No. 106A

No. **106A**. Steel cover, raised ⅜ inch high, 1½ inch opening, with notch. For sign receptacle with lug on porcelain. Formerly No. 106-P.

Mfrs. No	Universal Key No.	Pckg. Case Quantity	Wt , Lbs. Per Case	Price per 100
106A	24C35	250	50	**$12.00**

No. **106AB**. Brass cover, same as 106A. Was formerly No. 106O.

No. 106AB

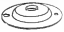
Mfrs. No.	Universal Key No	Pckg. Case Quantity	Wt., Lbs. Per Case	Price per 100
106AB	24C35	100	20	**$50.00**

No. 106B

No. **106B**. Steel cover, closed, raised ⅜ inch high.

Mfrs. No	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. Per Case	Price per 100
106B	24C2	250	60	**$11.00**

No. **106C**. Steel cover, raised ⅜ inch high, with special opening for reinforced portable cord. Can also be furnished with porcelain bushing at two cents extra, list.



No. 106C

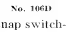
Mfrs. No	Universal Key No	Pckg Case Quantity	Wt., Lbs. Per Case	Price per 100
106C	24C12	250	60	**$13.00**

No. 106CB

No. **106CB**. Brass cover, same as 106C.

Mfrs. No	Universal Key No	Pckg. Case Quantity	Wt., Lbs. Per Case	Price per 100
106CB	24C12	100	24	**$50.00**

No. **106D**. Steel cover, raised ⅜ inch high, 1$\frac{1}{16}$ inch opening, screw centers 1½ inches, tapped 6-32. For receptacles GE60018, 60019, GE009, 66722, P & S No. 290, Bryant 1508; and Bryant Nos. 2170, 2254 and 2175 snap switches.



No. 106D

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. Per Case	Price per 100
106D	24C59	200	46	**$10.00**

All No. 106 Covers can be mounted on Nos. 101JT, 102JT, 103JT or 110JT Outlet Box Covers.

Black enamel and galvanized are the standard finishes for outlet boxes and covers, and finish should be specified on all orders.

UNION OUTLET BOX COVERS
FOR 3¼-INCH OCTAGON BOXES

No. 106DH

No. **106DH**. Steel cover, raised ⅜ inch high, 1½ inch opening, grooved, screw centers 1⅞ inches, tapped 6-32. For flush floor receptacles.

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. Per Case	Price per 100
106DH	24C56	250	50	**$10.00**

No. **106I**. Steel cover, flat, 1⅜ inch opening, screw centers 1$\frac{13}{16}$ inch, tapped 6-32. For standard Ames two-screw sign receptacle.

No. 106-I

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt , Lbs. Per Case	Price per 100
106-I	24C33	250	46	**$10.00**

No. 106-IB

No. **106IB**. Brass cover, same as 106-I. Was formerly No. 106J.

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt , Lbs. Per Case	Price per 100
106-IB	24C33	100	19	**$50.00**

No. **106L**. Steel cover, raised ⅜ inch high, 1$\frac{21}{32}$ inch opening, with intruding tongue. For Federal sign receptacles.

No. 106L

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt , Lbs. Per Case	Price per 100
106L	24C31	250	48	**$12.00**

No. 106LB

No. **106LB**. Brass cover, same as 106L. Was formerly No. 106K.

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. Per Case	Price per 100
106LB	24C31	100	20	**$50.00**

No. **106M**. Steel cover, flat, with screw centers of ⅞ inch to 1⅞ inches. For all surface mounted devices.

No. 106M

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. Per Case	Price per 100
106M	24C28	250	46	**$12.00**

No. 106-O

No. **106-O**. Steel cover, flat, 1½ inch opening, with screw centers of 1¾ inch. For Benjamin two-screw sign receptacles.

Mfrs. No.	Universal Key No.	Pckg Case Quantity	Wt., Lbs. Per Case	Price per 100
106O	24C49	100	23	**$10.00**

No. **106R**. Steel cover, flat.

No. 106R

Mfrs. No.	Universal Key No	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
106R	24C1	250	58	**$9.00**

No. 106RK

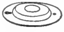
No. **106RK**. Steel cover, flat, with ½ inch knockout.

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
106RK	24C6	250	58	**$10.00**

All No. 106 Covers can be mounted on Nos. 101JT, 102JT, 103JT or 110JT Outlet Box Covers.

Black enamel and galvanized are the standard finishes for outlet boxes and covers, and finish should be specified on all orders.

UNION OUTLET BOX COVERS
FOR 3¼-INCH OCTAGON BOXES


No. 106RL

No. **106RL.** Steel cover raised ⅜ inch high, with ½ inch knockout.

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
106RL	24C7	250	61	**$12.00**

No. **106T.** Steel cover, flat, for all standard fluted catch devices.

No. 106T

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
106T	24C39	100	28	**$40.00**

No. 106TF

No. **106TF.** Steel cover, flat, with ⅛ inch brass female nipple.

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
106TF	24C23	100	27	**$22.00**

No. **106TM.** Steel cover, flat, with ⅛ inch brass male nipple.

No. 106TM

Mfrs. No	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
106TM	24C22	100	25½	**$22.00**

No. 106U

No. **106U.** Steel cover, raised ⅜ inch high, 1½ inch opening, with bent-under tongue. For sign receptacle of five notch type.

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
106U	24C36	100	24	**$12.00**

No. **106UF.** Steel cover, flat, with ⅜ inch brass female nipple.

No. 106UF

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
106UF	24C25	100	28	**$22.00**

No. 106UM

No. **106UM.** Steel cover, flat, with ⅜ inch brass male nipple.

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
106UM	24C24	100	27	**$22.00**

No. **106W.** Steel cover, flat, 1$\frac{13}{16}$ in. opening, with screw centers of 2$\frac{5}{32}$ inches. For P & S No. 372 receptacle.

No. 106W

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
106W	24C61	100	29½	**$10.00**

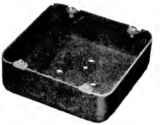
No. 106Y

No. **106Y.** Steel cover, flat, 1$\frac{21}{32}$ in. opening, with intruding tongue. For Federal sign receptacles.

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
106Y	24C44	100	23	**$10.00**

Black enamel and galvanized are the standard finishes for outlet boxes and covers, and finish should be specified on all orders.

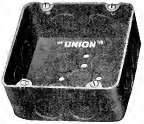
UNION OUTLET BOXES AND COVERS
4$\frac{11}{16}$-INCH SQUARE BOXES



No. **110.** 4$\frac{11}{16}$ inch square, 1½ inches deep, 8 outlets in sides 5 in bottom, for ½ or ¾ inch conduit. Ear centers, tapped 10-24. Four standard ¼ inch holes untapped for fixture studs, 1½ inch centers.

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
110	72151	50	60	**$50.00**

No. **111.** 4$\frac{11}{16}$ inches square, 2⅛ inches deep, 8 outlets in sides, 5 in bottom, for ½ inch or ¾ inch conduit. Four standard ¼ inch holes untapped for fixture studs. Also furnished with 8 knockouts in sides only for 1 inch conduit, 2 nail holes but no outlet or fixture stud holes in bottom.



Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
111	72121	50	75	**$60.00**

No. 110A

No. **110A.** Steel cover, raised ¾ inch high, 2⅞ inch opening.

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
110A	72C48	100	46	**$21.00**

No. **110B.** Steel cover, raised ⅝ inch high, closed center.

No. 110B

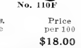
Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
110B	72C2	100	61	**$20.00**

No. 110C

No. **110C.** Steel cover, raised ⅝ inch high, with special opening for reinforced portable cord. Can also be furnished with porcelain bushing at two cents extra, list.

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
110C	72C12	100	61	**$22.00**

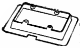
No. 110F. Steel cover, flat.


No. 110F

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
110F	72C1	100	58	**$18.00**

Black enamel and galvanized are the standard finishes for outlet boxes and covers, and finish should be specified on all orders.

UNION OUTLET BOX COVERS
FOR 4 11/16-INCH SQUARE BOXES



No. 110G

No. **110G**. Steel cover, raised ¾ inch high, for two flush devices. Tapped 6-32 on 3 9/32 inch centers. Distance between center lines 1 13/16 inches.

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt. Lbs. per Case	Price per 100
110G	72C18	100	52	**$28.00**

No. **110H**. Steel cover, raised ¾ inch high, for single flush device. Tapped 6-32 on 3 9/32 inch centers.

No. 110H

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt. Lbs. per Case	Price per 100
110H	72C14	100	49	**$24.00**

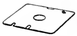
No. 110JT

No. **110JT**. Steel cover, raised ⅝ inch high, with lugs drilled and tapped 8-32, mounting screw centers of 2⅝ and 2¾ inches.

This cover will accommodate all 3¼ inch box covers.

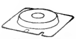
Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt. Lbs. per Case	Price per 100
110JT	72C3	100	54	**$22.00**

No. **110M**. Steel cover, flat, with ½ inch knockout.



No. 110M

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt. Lbs. per Case	Price per 100
110M	72C6	100	58	**$18.00**



No. 110MR

No. **110MR**. Steel cover, raised ⅝ inch high, with ½ inch knockout in center.

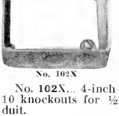
Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt. Lbs. per Case	Price per 100
110MR	72C7	100	58	**$21.00**

No. **110T**. Steel cover, flat, for all standard fluted catch devices.

No. 110T

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt. Lbs. per Case	Price per 100
110T	72C39	100	48	**$40.00**

UNION EXTENSION RINGS
4-INCH EXTENSION RINGS



No. 102X

Indefinite extensions can be built up by adding rings, one on top of the other. The rings will take all makes of standard covers permitting the use of any ordinary Conduit receptacle and switch.

Adapted for mounting on the 4-inch (Nos. 101 and 102) Outlet Boxes, where a larger number of additional connections are required.

No. **102X**... 4-inch square, 1⅝ inches deep, with 10 knockouts for ½ inch, or 8 for ¾ inch Conduit.

Mfrs. No.	Universal Key No.	Std. Pkg. Quantity	Wt., Lbs. Std. Pkg.	Price per 100
102X	53151	100	55	**$35.00**

Depths given represent the outside (extreme) dimensions of these rings.

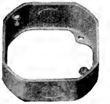
UNION EXTENSION RINGS
4-INCH EXTENSION RINGS

These rings were originally designed as an extension for any 4-inch Box, where a greater depth is desired. They are also suitable for bracket work, in partitions where wall fixtures are located at similar points on either side of the wall.

Indefinite extensions can be built up by adding rings, one on top of the other. The rings will take all makes of standard covers permitting the use of any ordinary Conduit Receptacle and Switch.

All extension rings listed are provided with the necessary lugs for attaching to Outlet Boxes, etc.

No. 103-X Ring



No. 103X

No. **103X**. Corresponds in shape with "Union" No. 103 ((octagon) Outlet Box, and has four knockouts (1 in each side), provided for Conduit.

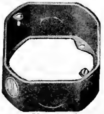
4-inch Octagon, 1⅝ inches deep, for ½ inch or ¾ inch Conduit.

Mfrs. No.	Universal Key No.	Std. Pkg. Quantity	Wt., Lbs. Std. Pkg.	Price per 100
103X	55151	100	48	**$31.00**

No. 104-X Ring

No. **104X**. Similar to No. 103X in shape and diameter, but has a greater depth to permit the use of 1-inch Conduit.

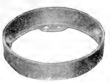
4-inch Octagon, 2¼ inches deep, with 4 knockouts for ½ inch, ¾ inch or 1 inch Conduit.



No. 104X

Mfrs. No	Universal Key No.	Std. Pkg. Quantity	Wt., Lbs. Std. Pkg.	Price per 100
104X	55171	100	65	**$41.00**

No. 109X Ring



No. 109X

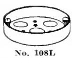
No. **109X**. Recommended for service in connection with concrete work, where the regular Concrete Box has been installed flush with the surface, and a full sized shallow extension ring is required to carry the opening through the finishing coats of plaster. This ring has no outlets provided in sides. 4-inch round ⅝ inch deep.

Mfrs. No.	Universal Key No.	Std. Pkg. Quantity	Wt., Lbs. Std. Pkg.	Price per 100
109X	57111	100	25½	**$20.00**

Black enamel and galvanized are the standard finishes and the finish desired should be specified when ordering.

Depths given above represent the outside (extreme) dimensions of these rings.

UNION OUTLET BOXES
SHALLOW CEILING BOXES
4-Inch, for Loom and Conduit

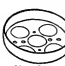


No. 108L

No. **108.** Box 4 inch diameter, ¾ inch deep, with lugs. 5 knockouts in bottom for ½ inch or ¾ inch conduit only. Ear centers 3½ inches, tapped 8-32.

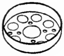
Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt. Lbs. per Case	Price per 100
108L	56121	100	51	**$20.00**

No. **108.** Box 4 inch diameter, ¾ inch deep, without ears. 5 knockouts in bottom for ½ inch or ¾ inch conduit only.



No. 108

108	56122	100	50	**$16.00**

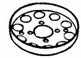


No. 235

No. **235.** Box 4 inch diameter, ¾ inch deep, without ears. 6 knockouts in bottom for loom, and 2 for conduit. Center knockout for ¾ inch conduit will pass ½ inch gas-pipe cap.

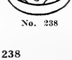
235	56126	100	50	**$16.00**

No. **237.** Box 4 inch diameter, ¾ inch deep, without ears. 10 knockouts in bottom for loom only. Center knockout for ¾ inch conduit will pass ½ inch gas-pipe cap.



No. 237

237	56124	100	50	**$16.00**

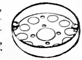


No. 238

No. **238.** Box 4 inch diameter, ¾ inch deep, with ears. 6 knockouts in bottom for loom and 2 for conduit. Center knockout for ¾ inch conduit will pass ½ inch gas-pipe cap. Ear centers 3½ inches; tapped 8-32.

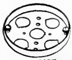
238	56125	100	53	**$20.00**

No. **240.** Box 4 inch diameter, ¾ inch deep, with ears. 10 knockouts in bottom for loom only. Center knockout for ¾ inch conduit, will pass ½ inch gas-pipe cap. Ear centers 3½ inches, tapped 8-32.



No. 240

240	56123	100	53	**$20.00**

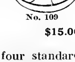


No. 109L

No. **109L.** Box 4 inch diameter, ½ inch deep, with ears. 5 knockouts in bottom for ½ inch or ¾ inch conduit only. Ear centers 3½ inches, tapped 10-24.

109L	56111	100	46	**$19.00**

No. **109.** Box 4 inch diameter, ½ inch deep, without ears. 5 knockouts in bottom for ½ inch or ¾ inch conduit only.



No. 109

109	56112	100	43	**$15.00**

All Shallow Ceiling Boxes have four standard ¼ inch holes untapped for fixture studs, spaced 1½ inches.

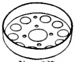
UNION OUTLET BOXES
SHALLOW CEILING BOXES
4-Inch, for Loom and Conduit

No. 225

No. **225.** Box 4 inch diameter, ½ inch deep, without ears. 6 knockouts in bottom for loom and 2 for conduit. Center knockout for ¾ inch conduit will pass ½ inch gas-pipe cap.

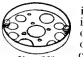
Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt. Lbs. per Case	Price per 100
225	56116	100	53	**$15.00**

No. **227.** Box 4 inch diameter, ½ inch deep, without ears. 10 knockouts in bottom for loom only. Center knockout for ¾ inch conduit will pass ½ inch gas-pipe caps.



No. 227

227	56114	100	44	**$15.00**

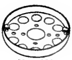


No. 228

No. **228.** Box 4 inch diameter, ½ inch deep, with ears. 6 knockouts in bottom for loom and 2 for conduit. Center knockout for ¾ inch conduit will pass ½ inch gas-pipe cap. Ear centers 3½ inches, tapped 8-32.

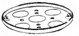
228	56115	100	45	**$19.00**

No **230.** Box 4 inch diameter, ¼ inch deep, with ears. 10 knockouts in bottom for loom only. Center knockout for ¾ inch conduit will pass ½ inch gas-pipe cap. Ear centers 3½ inches, tapped 8-32.



No. 230

230	56113	100	46	**$19.00**



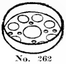
No. 116

No. **116.** Box 4 inch diameter, ¼ inch deep, with ears. 5 knockouts in bottom for ½ inch or ¾ inch conduit only. Center knockout for ¾ inch conduit, will pass ½ inch gas-pipe cap. Ear centers 3½ inches, tapped 8-32.

116	56111	100	42	**$15.00**

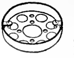
3½-Inch Diameter

No. **262.** Box 3½ inch diameter, ¾ inch deep, without ears. 8 knockouts in bottom for loom only. Center knockout for ¾ inch conduit will pass ½ inch gas-pipe cap.



No. 262

262	36124	100	41	**$16.00**

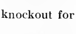


No. 263

No. **263.** Box 3½ inch diameter, ¾ inch deep, with ears. 8 knockouts in bottom for loom only. Center knockout for ¾ inch conduit will pass ½ inch gas-pipe cap. Ear centers 2¾ inch, tapped 8-32.

263	36123	100	42½	**$18.00**

No. **260.** Box 3½ inch diameter, ½ inch deep, without ears. 8 knockouts in bottom for loom only. Center knockout for ¾ inch conduit will pass ½ inch gas-pipe cap.



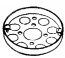
No. 260

Can also be furnished with center knockout for ½ inch conduit if specified.

260	36114	100	36	**$14.00**

All Shallow Ceiling Boxes have four standard ¼ inch holes untapped for fixture studs, spaced 1½ inches.

UNION OUTLET BOXES
SHALLOW CEILING BOXES
3½-Inch for Loom and Conduit


No. 261

No. **261**. Box 3½ inch diameter, ½ inch deep, with ears. 8 knockouts in bottom for loom only. Center knockout for ¾ inch conduit will pass ½ inch gas-pipe cap. Ear centers 2¾ inch, tapped 8-32.

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt. Lbs. per Case	Price per 100
261	36113	100	39	**$18.00**

3¼ Inch Diameter

No. **113L**. Box 3¼ inch diameter, ¾ inch deep, with ears. 3 knockouts in bottom for ½ inch conduit only. Ear centers, 2¾ inch, tapped 8-32.

No. 113L

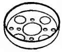
Mfrs. No	Universal Key No	Pckg Case Quantity	Wt., Lbs. per Case	Price per 100
113L	26121	100	36	**$20.00**

No. 113

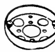
No. **113**. Box 3¼ inch diameter, ¾ inch deep, without ears. 3 knockouts in bottom for ½ inch conduit only.

Mfrs. No	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
113	26122	100	34	**$14.00**

No. **272**. Box 3½ inch diameter, ¾ inch deep, without ears. 4 knockouts in bottom for loom only. Center knockout for ¾ inch conduit will pass ½ inch gas-pipe cap.


No. 272

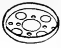
Mfrs. No.	Universal Key No	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
272	26124	100	37½	**$14.00**


No. 273

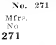
No. **273**. Box 3¼ inch diameter, ¾ inch deep, with ears. 4 knockouts in bottom for loom only. Center knockout for ¾ inch conduit will pass ½ inch gas-pipe cap. Ear centers 2¾ inch, tapped 8-32.

Mfrs. No	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
273	26123	100	39	**$18.00**

No. **270**. Box 3¼ inch diameter, ½ inch deep, without ears. 4 knockouts in bottom for loom only. Center knockout for ¾ inch conduit will pass ½ inch gas-pipe cap.


No. 270

Mfrs. No	Universal Key No	Pckg Case Quantity	Wt., Lbs. per Case	Price per 100
270	26114	100	25½	**$14.00**


No. 271

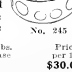
No. **271**. Box 3¼ inch diameter, ½ inch deep, with ears. 4 knockouts in bottom for loom only. Center knockout for ¾ nich conduit will pass ½ inch gas-pipe cap. Ear centers 2¾ inch, tapped 8-32.

Mfrs. No	Universal Key No.	Pckg Case Quantity	Wt , Lbs. per Case	Price per 100
271	26113	100	28½	**$18.00**

DEEP CEILING BOXES

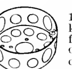
All shallow ceiling boxes have four standard ¼ inch holes, untapped for fixture studs, spaced 1½ inches.

No. **245**. Box 4 inch diameter, 1½ inches deep, with ears. 6 knockouts in bottom and 8 in sides for loom, and 2 in bottom and 4 in sides for conduit. Center knockout for ¾ inch conduit, will pass ½ inch gas-pipe cap. Ear centers 3½ inches, tapped 8-32.


No. 245

Mfrs. No	Universal Key No	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
245	56155	100	74	**$30.00**

UNION OUTLET BOXES AND PLATES
DEEP CEILING BOXES
For Loom and Conduit


No. 247

No. **247**. Box 4 inch diameter, 1½ inches deep, with ears. 10 knockouts in bottom and 8 in sides for loom and 4 in sides only for conduit. Center knockout for ¾ inch conduit will pass ½ inch gas-pipe cap. Ear centers 3½ inches, tapped 8-32.

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
247	56155	100	74	**$30.00**

No. **274**. Box 3¼ inch diameter, 1⅝ inches deep, with ears. 4 knockouts in bottom and 8 in sides for loom and 4 in sides only for conduit. Center knockout for ¾ inch conduit will pass ½ inch gas-pipe cap. Ear centers 2¾ inches, tapped 8-32.

No. 274

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
274	26135	100	58½	**$26.00**

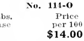
PLATES FOR DEEP CEILING BOXES

No. 114

No. **114**. Plate 4 inch diameter, with 5 knockouts for ½ inch or ¾ inch conduit only.

Mfrs No	Universal Key No	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
114	56712	200	62½	**$14.00**

No. **114-O**. Plate 4 inch diameter, with 3 knockouts for ½ inch conduit only.


No. 114-O

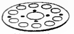
Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
114-O	54712	200	58	**$14.00**

No. 220

No. **220**. Plate 4 inch diameter, with 6 knockouts for loom and 2 for conduit. Center knockout for ¾ inch conduit will pass ½ inch gas-pipe cap.

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
220	56715	200	60	**$14.00**

No. **222**. Plate 4 inch diameter, with 10 knockouts for loom only. Center knockout for ¾ inch conduit will pass ½ inch gas pipe cap.


No. 222

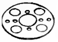
Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt., Lbs. per Case	Price per 100
222	56711	200	61	**$14.00**

No. 215

No. **215**. Plate 3½ inch diameter, with 8 knockouts for loom only. Center knockout for ¾ inch conduit will pass ½ inch gas-pipe cap.

Mfrs. No.	Universal Key No.	Pckg Case Quantity	Wt., Lbs. per Case	Price per 100
215	36713	250	53	**$12.00**

No. **212**. Plate 3¼ inch diameter, with 4 knockouts for loom only. Center knockout for ¾ inch conduit will pass ½ inch gas-pipe cap.


No. 212

Mfrs. No	Universal Key No.	Pckg. Case Quantity	Wt. Lbs. per Case	Price per 100
212	26713	300	54	**$12.00**

No. 210

No. **210**. Plate 2½ inch diameter, with 1 knockout, for ½ inch conduit only. No holes provided on this plate for fixture studs.

Mfrs. No.	Universal Key No.	Pckg. Case Quantity	Wt. Lbs. per Case	Price per 100
210	16711	100	11	**$10.00**

UNION CONCRETE BOXES

FOR CONCRETE WORK

Concrete Box Ring

Union Stamped Steel Concrete boxes, provided with a removable back cover plate, are especially suited for installation in ceilings or walls built of concrete.

The installation of these conduit boxes in concrete boxes, in concrete contruction is best accomplished by following methods most generally in practice as follows: After removing the back plate, the required number of knockouts should be taken out, and the conduits, with their locknuts and bushings, put in. The Box is then nailed to the wooden form, the conduits permanently attached, and the cover put on and securely fastened by tightening the two screws. The concrete can then be poured and allowed to set, after which the wooden form can be torn away and the opening in the box affords easy access for fishing the wires through the conduits.

These boxes will mount any of the standard No. 103 Outlet Box Covers, or when an additional thickness of plaster is applied, the No. 109-X extension ring will serve to continue the mouth of the box to the surface of the plaster.

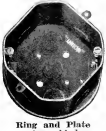
Back Plate

4-Inch Octagon Box

1 knockout in each of the four flat sides. External Lugs: 2 nail lugs in front projecting outwards. Internal Lugs: 2 pairs of inward projecting ears, one pair at back for back plate and one pair at front for mounting standard 4-inch Round Outlet Box Covers.

Back Plates

4-inch Round flanged, with 3 knockouts for ½-inch conduit. Fixture Studs: Four ¼-inch holes untapped for standard fixture studs. Screw Holes: 2 holes for screws, to secure the plate to the back of the box.


Ring and Plate Assembled

Knockouts

Boxes can be furnished with ½-inch, ¾-inch, or 1-inch Conduit Knockouts as desired.

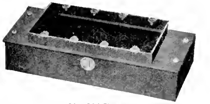
Prices include both box and cover plate.

Mfrs. No.	Universal Key No.	Depth In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
202	54531	2	100	107	**$30.00**
203	54551	3	100	136	**40.00**
203½	54561	3½	100	149	**45.00**
204	54571	4	100	162	**50.00**
205	54581	5	100	197	**60.00**
206	54591	6	100	227	**70.00**

Galvanized is the standard finish for all concrete boxes and cover plates.

UNION SWITCH BOXES

SOLID ONE-PIECE BOXES


No. 304 Box

Boxes are made of pressed steel, and are both rigid and substantial. Outside dimensions of box with cover mounted are 4¼ inches wide and 2⅞ inches deep, and without cover, 4⅛ inches wide and 2⅛ inches deep.

For ½-Inch Conduit

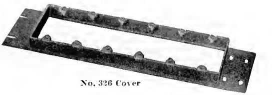
Mfrs. No.	No. of Gangs	Length of Box	Knockouts Each Side	Knockouts Each End	Wt., Lbs. per 100	Price per 100
302	2	$6\frac{15}{16}$	4	2	173	**$ 60.00**
303	3	8¾	5	2	206	**90.00**
304	4	$10\frac{9}{16}$	6	2	233	**120.00**
305	5	12⅜	6	2	276	**160.00**
306	6	$14\frac{3}{16}$	8	2	300	**310.00**
307	7	16	10	2	334	**470.00**
308	8	$17\frac{13}{16}$	12	2	375	**500.00**
309	9	19⅞	12	2	425	**550.00**
310	10	21⅝	14	2	450	**600.00**

For ¾-Inch Conduit

Mfrs. No.	No. of Gangs	Length of Box	Knockouts Each Side	Knockouts Each End	Wt., Lbs. per 100	Price per 100
312	2	$6\frac{15}{16}$	3	2	173	**$ 60.00**
313	3	8¾	4	2	206	**90.00**
314	4	$10\frac{9}{16}$	5	2	233	**120.00**
315	5	12⅜	6	2	276	**160.00**
316	6	$14\frac{3}{16}$	6	2	300	**310.00**
317	7	16	8	2	334	**470.00**
318	8	$17\frac{13}{16}$	10	2	375	**500.00**
319	9	19⅞	10	2	425	**550.00**
320	10	21⅝	12	2	450	**600.00**

The above boxes are regularly supplied with a Galvanized finish.

SOLID ONE-PIECE COVERS


No. 326 Cover

Covers have mounting centers that will accommodate all standard Push Button Switches. The switch centers are $3\frac{9}{32}$ inches and center lines are $1\frac{13}{16}$ inches apart.

Mfrs. No.	No. of Gangs	Length of Box	Will Also Fit Box	Wt., Lbs. per 100	Price per 100
322	2	7⅛	....	69	**$ 30.00**
323	3	9	2-Gang	80	**45.00**
324	4	10¾	3-Gang	90	**60.00**
325	5	$12\frac{9}{16}$	4-Gang	99	**75.00**
326	6	14⅜	5-Gang	109	**145.00**
327	7	$16\frac{3}{16}$	6-Gang	123	**260.00**
328	8	18	7-Gang	138	**290.00**
329	9	$19\frac{13}{16}$	8-Gang	150	**330.00**
330	10	21⅝	9-Gang	165	**360.00**

Covers are provided with extra slotted screw holes, plugged to fit next smaller size box.

UNION SECTIONAL SWITCH BOXES

For Non-Metallic Flexible Tubing

Gem S

Equipped with reversible and sliding ears which have an adjustment of $\frac{1}{2}$-inch up to $\frac{3}{4}$-inch, suitable for both Old and New Work.

These square-cornered boxes are particularly adapted for new work on account of the maximum space that is available in the corners for wiring, bushings, etc.

GEM S BOX

Depth 2 inches, Length 3 inches, Width 2 inches. Knockouts, $\frac{5}{8}$ inch, 2 in each side, 2 in each end, and 4 in bottom.

Without clamps.

Cat. No.	Type	Pkg. Case Qty.	Wt. Lbs. Per Case	Price Per 100
360	S Box	100	67	$50.00

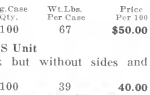
Gem S Unit

Same as Gem S Box but without sides and clamps.

361	S Unit	100	39	40.00

GEM C BOX

Depth $2\frac{1}{2}$ inches, Length 3 inches, Width 2 inches. Knockouts $\frac{5}{8}$ inch, 2 in each side, 2 in each end, and 4 in bottom. Without clamps.



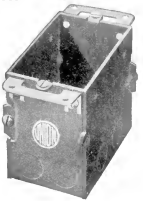
Gem C

Cat. No.	Type	Pkg. Case Qty.	Wt. Lbs. Per Case	Price Per 100
362	C Box	100	78	$50.00

Gem C Unit

Same as Gem C Box but without sides and clamps.

363	C Unit	100	45	40.00



Gem A

GEM A BOX

Depth 3 inches, Length 3 inches, Width 2 inches. Knockouts, $\frac{5}{8}$ inch, 2 in each side, 2 in each end, and 4 in bottom. Without clamps.

Gem A Unit

Same as Gem A Box but without sides and clamps.

Cat. No.	Type	Pkg. Case Qty.	Wt. Lbs. Per Case	Price Per 100
364	A Box	50	88	$50.00
365	A Unit	50	48	40.00

Above boxes are regularly finished with a heavy coat of Black Insulating Enamel, but can also be furnished Galvanized at a slight advance in price.

UNION SECTIONAL SWITCH BOXES

For Non-Metallic Flexible Tubing

Gem D

Equipped with reversible and sliding ears which have an adjustment of $\frac{1}{2}$-inch up to $\frac{3}{4}$-inch, suitable for both old and new work.

The beveled corners permit installation of the box into the smallest practical opening in the wall.

GEM D BOX

Depth 2 inches, Length 3 inches, Width 2 inches. Knockouts, $\frac{5}{8}$-inch, 2 in each side, and 2 in each beveled corner only.

Without clamps

Cat. No.	Type	Pkg. Case Qty.	Wt. Lbs. Per Case	Price Per 100
366	D Box	100	64	$50.00

Gem D Unit

Same as Gem D Box but without sides and clamps.

367	D Unit	100	37	40.00

GEM F BOX

Depth $2\frac{1}{4}$ inches, Length 3 inches, Width 2 inches. Knockouts, $\frac{5}{8}$-inch, 2 in each side, and 2 in each beveled corner only. Without clamps.

Gem FC

Cat. No.	Type	Pkg. Case Qty.	Wt. Lbs. Per Case	Price Per 100
368	F Box	100	69	$50.00

Gem F Unit

Same as Gem F Box but without sides and clamps.

369	F Unit	100	39	40.00

GEM FC BOX

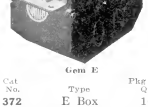
Same as Gem F Box, but provided with No. 2 Clamps.

370	FC Box	100	73	60.00

Gem FC Unit

Same as FC Box with No. 2 Clamps, but without sides.

371	FC Unit	100	43	50.00



Gem E

GEM E BOX

Depth $2\frac{1}{2}$ inches, Length 3 inches, Width 2 inches. Knockouts, $\frac{5}{8}$-inch, 2 in each side, and 2 in each beveled corner only. Without clamps.

Gem E Unit

Same as Gem E Box, but without sides and clamps.

Cat No.	Type	Pkg. Case Qty.	Wt. Lbs. Per Case	Price Per 100
372	E Box	100	73	$50.00
373	E Unit	100	42	40.00

Above boxes are regularly finished with a heavy coat of Black Insulating Enamel, but can also be furnished Galvanized at a slight increase in price.

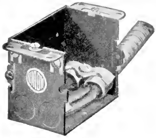
UNION SECTIONAL SWITCH BOXES

For Flexible Metallic Conduit

Gem X and Y Boxes take all makes of Push Button and Rectangular Base Switches and Receptacles. The knockouts are large enough to accommodate BX Nos. 10, 12 and 14 B & S. twin conductors and BX3 Nos. 12 and 14 B & S. triple conductors, also $\frac{5}{16}$ inch and ⅜ inch Greenfield Flexible Steel Conduit when ends are protected by brass bushing caps.

Equipped with reversible and sliding ears which have an adjustment of $\frac{1}{2}$ inch up to ¾ inch, suitable for both old and new work.

GEM X BOX



Gem X

Depth, 2½ inches. Length, 3 inches. Width, 2 inches. Knockouts, $\frac{23}{32}$ inch. 2 in each side, 2 in each end, and 4 in bottom. With No. 1 clamps.

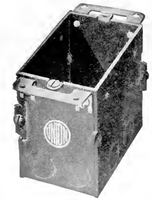
Cat. No.	Type	Pkg. Case Qty.	Wt., Lbs. Per Case	Price Per 100
374	X Box	100	83	**$60.00**

Gem X Unit

Same as Gem X Box, with No. 1 clamps, but without sides.

375	X Unit	100	47	**50.00**

GEM Y BOX



Gem Y

Depth, 3 inches. Length, 3 inches. Width, 2 inches. Knockouts, $\frac{23}{32}$ inch. 2 in each side, 2 in each end, and 4 in bottom.

With No. 1 Clamps.

Cat. No.	Type	Pkg. Case Qty.	Wt., Lbs. Per Case	Price Per 100
376	Y Box	50	48	**$60.00**

Gem Y Unit

Same as Gem Y Box, with No. 1 Clamps, but without sides.

377	Y Unit	50	30	**50.00**

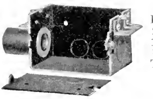
Above boxes are regularly finished with a heavy coat of Black Insulating Enamel, but can also be furnished Galvanized at a slight advance in price.

UNION SECTIONAL SWITCH BOXES

For Rigid Metallic Conduit

Accommodate all standard makes of Switches and Receptacles, and can be furnished with ½ inch or ¾ inch conduit knockouts. They may also be used for flexible tubing of larger than ½ inch size if desired, and for Standard BX Conductors by using box connectors as are listed on another page.

GEM BS BOX



Gem BS
Showing Type R Bushing

Depth, 2 inches. Length, 3 inches. Width 2 inches. Knockouts, 1 in each end only for ½ inch conduit. Use Type R Bushings.

Gem BS Unit

Gem BS without sides. Use Type R Bushings.

GEM BM BOX

Depth 2½ inches. Length 3 inches. Width 2 inches. Knockouts, 1 in each end only for ½ inch conduit. Use Type R Bushings.

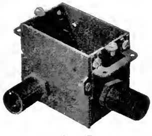
Gem BM Unit

Gem BM without sides. Use Type R Bushings.

Cat. No.	Type	Pkg. Case Qty.	Wt., Lbs. Per Case	Price Per 100
378	BS Box	100	67	**$50.00**
379	BS Unit	100	39	**40.00**
380	BM Box	100	78	**50.00**
381	BM Unit	100	45	**..40.00**

GEM B BOX

Depth 2¾ inches. Length, 3 inches. Width 2 inches. Knockouts, 2 in each end, and 2 in bottom for ½ inch conduit; or 2 in each side for ½ inch and 1 in each end for ¾ inch and none in bottom.



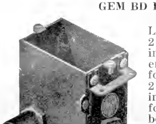
Gem B

Gem B Unit

Gem B without sides. Use Type R Bushings.

Cat. No.	Type	Pkg. Case Qty	Wt., Lbs. Per Case	Price Per 100
382	B Box	100	86	**$50.00**
383	B Unit	100	47	**40.00**

GEM BD BOX



Gem BD

Depth, 3½ inches. Length 3 inches. Width 2 inches. Knockouts, 2 in each side, 1 in each end, and 2 in bottom for ½ inch conduit; or 2 in each side for ½ inch and 1 in each end for ¾ inch and none in bottom.

Gem BD Unit

Gem BD without sides.

Cat. No.	Type	Pkg. Case Qty	Wt., Lbs. Per Case	Price Per 100
384	BD BOX	50	52	**$50.00**
385	BD Unit	50	29	**40.00**

Regularly finished with a heavy coat of Black Insulating Enamel, but can also be furnished Galvanized at a slight advance in price.

UNION SECTIONAL SWITCH BOXES
FOR RIGID CONDUIT

GEM R BOX

Depth, 1½ inches. Length, 3¾ inches. Width, 2 inches. Knockouts, 1 in each end for ½ inch conduit only.

This box has no ears; suitable for two-inch partition.

Cat. No.	Type	Pkg. Case Qty.	Wt., Lbs. per Case	Price per 100
386	R Box	100	65	$40.00

Gem R Unit

Gem R without sides. Unit has no ears.

387	R Unit	100	33	30.00

UNION SOLID DRAWN SWITCH BOXES
FOR FLEXIBLE NON-METALLIC CONDUIT

Designed for the contractor who prefers a solid Unit Box for a Single, 2-Gang or 3-Gang switch installation in old or new work.

The beveled corners permit them to be installed in the smallest practical opening in the wall, and make the fishing of the ends of the Flexible Conduit very easy.

SS-Single

Depth 2½ inches. Length 3 inches. Width 2 inches. 2 knockouts in each side and 2 in each beveled corner for loom. Can be furnished with ½ inch conduit knockout in bottom if specified.

Cat. No.	Type	Pkg. Case Qty.	Wt. Lbs. Std. Pkg.	Price Each
392	SS-Single	100	64	$0.30

SS 2-Gang

Depth 2½ inches. Length 3 inches. Width 3¾ inches. 2 Knockouts in each side and 4 in each beveled corner for loom. 2 knockouts can be provided in bottom for ½ inch conduit if desired.

Cat. No	Type	Pkg. Case Qty.	Wt Lbs. Std. Pkg.	Price Each
393	SS 2-G	50	54	$0.50

SS 3-Gang

Depth, 2½ inches, Length 3 inches, Width 5½ inches. 2 Knockouts in each side and 6 in each beveled corner for loom. Can be supplied with 3 knockouts in bottom for ½ inch conduit if required.

Cat. No	Type	Pkg. Case Qty.	Wt. Lbs. Std. Pkg.	Price Each
394	SS 3-G	50	67	$0.70

Above Boxes are regularly furnished in Black Enamel, but can be supplied with Galvanized finish if desired, at slight increase in price.

UNION SWITCH BOX CLAMPS
For Use on Gem Sectional Switch Boxes

TYPE 1 CLAMP

No. 1 Clamp

These clamps are regularly used in square cornered switch boxes for either Flexible Metallic Conduit or Armored Cable, and in some locations where it is required that Non-Metallic Conduit be anchored to the switch box, to prevent it from working out of place. Regularly furnished with Gem X and Gem Y Boxes for Flexible Metallic Conduit.

Cat. No.	Type	Price Per Pair
399	No. 1 Clamp	$0.05

TYPE 2 CLAMP

For use in beveled corner switch boxes such as the Gem F, for clamping Non-Metallic Flexible Loom. Either clamp, when installed, can be set independently of the other, and both provide a very firm grip on the loom.

No. 2 Clamp

Cat. No.	Type	Price Per Pair
400	No. 2 Clamp	$0.05

TYPE 3 CLAMP

No. 3 Clamp

This clamp is only suitable for beveled corner switch boxes, and is of one-piece construction, being particularly adapted for use where loom enters from both ends of the box, adjustment of tension being applied by a single clamping screw.

Cat. No.	Type	Price Per Pair
401	No. 3 Clamp	$0.10

TYPE 4 CLAMP

This clamp, for use on beveled corner loom boxes, is recommended for use where space in switch box is more or less limited. It lies snugly on the outside of the switch box and maintains a firm grip on the Conduit.

No. 4 Clamp

Cat. No.	Type	Price Per Pair
402	No. 4 Clamp	$0.10

UNION SECTIONAL SWITCH BOXES

For Loom or Rigid Conduit

These Sectional Combination Loom and Conduit, Shallow Switch Boxes are particularly adapted for thin partition and outside wall work.

No. 170 Box

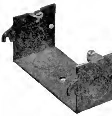
TYPE 170 BOX

4 inches long, 2 inches wide, 1⅞ inches deep. 1 outlet in each end for ½-inch Conduit, 2 outlets in each side for Loom or ⅜-inch Flexible Conduit. Not provided with external supporting cars. Has 1 mounting hole in bottom.

Cat. No.	Type	Pkg.Case Qty.	Wt.Lbs. Per Case	Price Per 100
170	Single	100	75	**$20.00**

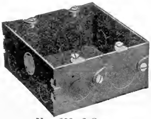
SPACER

Spacer 4 inches long, 1⅞ inches deep, and 1 13/16 inches wide, which allows correct spacing for push button switches. By adding these spacers, any number of gangs can be obtained. Provided with 1 knockout in each end for ½-inch Conduit.



No. 170 Spacer

Cat. No.	Type	Pkg.Case Qty.	Wt.Lbs. Per Case	Price Per 100
170S	Spacer	100	40	**$18.00**



No. 170 2-Gang

TYPE 170-2G

This Box is built up from the 170 Box and Spacer, providing distance between the switches. Screw centers 3 9/32 inches.

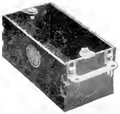
Cat. No.	Type	Pkg Case Qty.	Wt.Lbs. Per Case	Price Per 100
170 2-G	2-Gang	50	54	**$38.00**

TYPE 170A

This box is a single sectional switch box, same as No. 170 but is provided with external ears for attaching to wall or plaster.

Type 170A 2-Gang

Similar to No. 170 2-Gang, but is provided with external supporting ears.



No. 170A Box

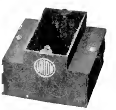
Cat. No.	Type	Pkg.Case Qty.	Wt.Lbs. Per Case	Price Per 100
***170A**	Single	100	77	**$30.00**
***170A 2-G**	2-Gang	50	55	**54.00**

*These boxes are intended for new work only. The 170-A (with ears) is not suitable for old work because the standard switch plates will not cover same. Dimensions given for above boxes are outside measurements.

Above Boxes are regularly finished with a heavy coat of Black Insulating Enamel, but can also be furnished Galvanized at a slight increase in price.

UNION SECTIONAL SWITCH BOXES

For Rigid Conduit



No. 155 Box

TYPE 155 BOX

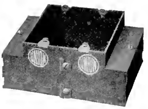
The No. 155 Box is the only single switch box that provides ample room for making splices, taps or junctions. Both of the top side cover-plates can be removed by loosening the screws, which permits easy access to the wires without disturbing or removing the switch.

4 inches long, 4 inchcs wide, 2⅝ inches deep, 2 knockouts in each sidc, 2 in each end, for ½-inch or ¾-inch Conduit. Screw centers 3 9/32 inches.

Cat. No.	Type	Pkg Case Qty.	Wt.Lbs. Per Case	Price Per 100
155	Single	50	73½	**$34.00**

TYPE 160 BOX

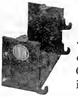
The hook-eye construction permits rapid assembling when additional gangs are required. With the aid of spacers, this box can be built up to any size for accommodating additional switches.



No. 160 Box

4 inchcs long, 5¾ inches wide, 2⅝ inches deep, 4 knockouts in cach side, 2 in each end, for ½-inch or ¾-inch Rigid Coduit. Screw centers 3 9/32 inches.

Cat. No.	Type	Pkg Case Qty.	Wt.Lbs. Per Case	Price Per 100
160	2-G	25	51	**$60.00**



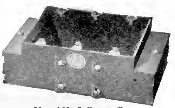
No. 160 Spacer

TYPE 160 SPACER

Spacer 4 inches long, 1 13/16 inches widc, 2⅝ inches decp, 1 out in each end for ½-inch or ¾-inch Conduit. Screw centers 3 9/32 inches.

Cat. No.	Type	Pkg.Case Qty.	Wt.Lbs. Per Case	Price Per 100
160-S	Spacer	100	49	**$26.00**

The illustration here shows a three-gang box built up with the No. 160 Box and Spaccr. These boxes can also be used as junction boxes when equipped with flat covers, and will meet the requirements of the Underwriters.



No. 160 3-Gang Box

The No. 180 Covers will also fit No. 155 Switch Box for mounting Snap Switches, Receptacles and Rosettes.

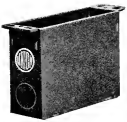
All the above boxes are provided with mounting holes in bottom.

These Boxes can be supplied with Black Enamel or Galvanized finish, but when same is not specified, Black Enamel will be furnished.

UNION SWITCH BOXES

For Rigid or Flexible Conduit

DOOR-SWITCH BOXES



DS-No. 1

The DS line of Door-Switch Boxes takes all standard makes of Door Switches, and is made in strict accordance with the specifications recommended by the Underwriters' Laboratories, Inc.

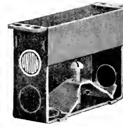
DS-1

For Perkins and Arrow E Door Switches. One ⅝-inch knockout in each end for Flexible Conduit and one ½-inch knockout in bottom for Rigid Conduit. Screw Centers 3¾ inches.

Mfrs. No.	Size, In. Lgth.	Width	Depth	Pkg. Case Qty.	Wt. Lbs. Per Case	Price Per 100
DS-1	3⅝	$1\frac{3}{16}$	2⅝	100	75	**$50.00**

DS-2

Same as above only has $\frac{23}{32}$-inch knockout in each end being for Flexible Conduit and is furnished with clamps.



DS-No. 2

DS-2	3⅝	$1\frac{3}{16}$	2⅝	100	76	**$65.00**

DS-3

For Diamond H. Door Switches. One ⅝-inch knockout in each end for Flexible Conduit and one ½-inch knockout in bottom for Rigid Conduit. Screw Centers $3\frac{9}{16}$ inches.

DS-3	3¼	$1\frac{3}{16}$	2⅝	100	68	**$50.00**

DS-4

Same as above only has $\frac{23}{32}$-inch knockout in each end being for Flexible Conduit and is furnished with clamps.

DS-4	3¼	$1\frac{3}{16}$	2⅝	100	69	**$65.00**

DS-5

For H & H Door Switches. One ⅝-inch knockout in each end for Flexible Conduit and one ½-inch knockout in bottom for Rigid Conduit. Screw centers $3\frac{7}{32}$ inches.

DS-5	3	$1\frac{3}{16}$	3	100	69	**$50.00**

DS-6

Same as above only has $\frac{23}{32}$-inch knockout in each end being for Flexible Conduit and is furnished with clamps.

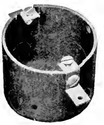
DS-6	3	$1\frac{3}{16}$	3	100	70	**$65.00**

These boxes are made of 14 gauge steel and are finished with a heavy coat of Black Insulating Enamel but can be furnished Galvanized, if desired, at a slight increase in price.

UNION RECEPTACLE BOXES

MIDGET RECEPTACLE BOX

For Hubbel, Bryant and Arrow Flush Receptacles



No. 200 Box

Designed for old work. Receptacle box, 2½ inches wide, 1⅞ inches deep, has 4 knockouts in sides and 2 in bottom for ¼ inch and ⅜ inch Flexible Non-metallic Conduit, or when specified, one ½ inch knockout can be provided in bottom for connecting bushing for Flexible Metallic Conduit.

The ears on this box are normally set to give screw centers of 1⅞ inches for mounting such receptacles as Hubbell No. 6282, Bryant No. 115 and Arrow E No. 2830.

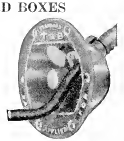
When the ears are reversed, the screw centers are $1\frac{13}{32}$ inches and will mount Arrow E No. 522, Bryant Nos. 309, 1508 and 1509.

A special type "M" ear provides mounting centers of 2⅝ to 3 inches.

Mfrs. No	Packing Case Quantity	Wt., Lbs. per Case	Price Each
200	100	43	**$0.28**

T & B STANDARD BOXES

For Armored Conductors

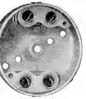


Two sides of the box, in which four plugged openings are provided, are made on an angle.

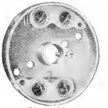
Boxes are thoroughly galvanized. No. 280 T. & B. Connectors must be used with this box.

Mfrs. No.	Description	Std. Pkg.	Wt., Lbs. Per 100	Price Per 100
160	For straight electric work, ⅜-inch fixture stems....	100	74	**$20.00**
161	For comb. gas and electric, to slip ⅜" gas pipe	100	76	**20.00**

NATIONAL CABLE AND LOOM BOXES



No. 2365



No. 2366

Stamped steel. No. 2365 is 3¼ inches in diameter and ¾ inch deep. If No. 8-32 screws, ½ inch long are inserted in tapped cover lug holes, standard 3¼ inch outlet box covers may be used. No. 2366 is identical with No. 2365, except that instead of threaded stud a sleeve is provided to allow box to be slipped over ⅜ inch gas pipe at combination gas and electric outlets.

Mfrs. No.	Description	Price Each
2365	With ⅜ Inch Fixture Stem..................	**$42.50**
2366	With Sleeve for ⅜ Inch Gas Pipe........	**42.50**

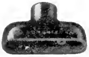
Unit package, 10; standard package, 100; shipping weight per 100, 44 pounds.

CONDULET BODIES—OBROUND SERIES

Black Enamel Finish

Types A, B and C take Obround Covers, Condulettos, or other Wiring Devices. Type BE takes Obround Covers only.

TYPE A



"Obround" is taken from the words "oblong" and "round" and refers to a series of Condulets having cover openings which are oblong but have semi - circular or round ends.

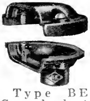
Mfrs. No.	Size In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
A1	½	200	145	$0.24
A2	¾	100	100	.31
A3	1	50	65	.43
A4	1¼	25	60	.62
A5	1½	10	40	.80
A6	2	5	30	1.66
A7	2½	5	50	4.20
A8	3	5	55	5.00
A9	3½	5	70	8.15
A10	4	5	70	9.00
A011	4½	1	20	11.50
A012	5	1	25	14.00
A014	6	1	25	20.25

TYPE B

Mfrs. No.	Size In.	Std Pkg.	Wt Lbs. Std Pkg	Price Each
B1	½	200	155	$0.29
B2	¾	100	100	.36
B3	1	50	70	.50
B4	1¼	25	60	.80
B5	1½	10	40	1.04
B6	2	5	30	2.14
B7	2½	5	50	4.20
B8	3	5	60	5.00
B9	3½	5	70	8.15
B10	4	5	105	9.00

Type B Condulet bodies are recommended for use with small conductors. For large conductors use type BE.

TYPE BE



Type BE Condulet bodies have a removable top which makes it possible to pull conductors through the Condulet body without bending.

Mfrs. No.	Size In.	Std Pkg.	Wt. Lbs. Std. Pkg.	Price Each
BE1	½	200	300	$0.60
BE2	¾	100	175	.75
BE3	1	50	150	1.10
BE4	1¼	25	100	1.70
BE5	1½	10	60	2.25
BE6	2	5	60	3.90
BE7	2½	5	90	8.15
BE8	3	5	160	9.00
BE9	3½	5	225	15.25
BE10	4	5	250	17.00
BE011	4½	1	80	37.00
BE012	5	1	85	40.00
BE014	6	1	90	45.00

TYPE C

Mfrs. No	Size In.	Std. Pkg.	Wt Pkg	Price Each
C1	½	200	185	$0.36
C2	¾	100	120	.41

Mfrs. No	Size In	Std. Pkg.	Wt. Pkg.	Price Each
C3	1	50	90	$0.59
C4	1¼	25	70	.94
C5	1½	10	45	1.22
C6	2	5	40	2.43
C7	2½	5	45	4.80
C8	3	5	60	6.20
C9	3½	5	85	9.00
C10	4	5	100	11.00

Foot notes, see opposite column.

CONDULET BODIES—OBROUND SERIES

Black Enamel Finish

Types CO, COV, CUB and E take Obround Covers, Obround Condulettos, or other Wiring Devices.

TYPE CO

Type CO Condulet bodies provide an offset of four inches in a conduit system such as is encountered in brick walls of varying thickness.

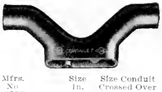
Mfrs No	Size In.	Std Pkg	Wt. Lbs. Std. Pkg.	Price Each
CO1	½	50	75	$0.50
CO2	¾	50	95	.65
CO3	1	25	60	.75
CO4	1¼	10	35	1.25
CO5	1½	10	50	1.60
CO6	2	5	45	3.25
CO7	2½	5	60	5.20
CO8	3	5	70	7.90
CO9	3½	5	90	12.60
CO10	4	5	95	13.80

TYPE COV

Two type COV Condulet bodies connected by a nipple of suitable length form a convenient cross-over for two or more pipes or conduits.

Mfrs. No	Size In.	Size Conduit Crossed Over	Std. Pkg.	Wt. Pkg.	Price Each
COV14	½	1¼	50	80	$0.50
COV24	¾	1¼	50	100	.65
COV34	1	1¼	25	60	.75
COV45	1¼	1½	10	35	1.25
COV56	1½	2	10	50	1.60
COV67	2	2½	5	45	3.25
	2½	3½	Use CO 7		
	3	3½	Use CO 8		

TYPE CUB



Type CUB Condulet body provides a cross-over where-ever it is necessary to bridge a single pipe or conduit.

Mfrs. No	Size In.	Size Conduit Crossed Over	Std. Pkg	Wt. Pkg.	Price Each
CUB12	½	¾	25	50	$0.75
CUB14	½	1¼	25	55	.85
CUB23	¾	1	25	65	.90
CUB24	¾	1¼	10	40	.95
CUB34	1	1¼	10	50	1.40
CUB45	1¼	1½	10	60	1.90
CUB56	1½	2	10	70	2.40
CUB67	2	2½	5	60	4.80

TYPE E

Mfrs No.	Size In.	Std Pkg.	Wt.Lb. Std.Pkg.	Price Each
E1	½	200	150	$0.29
E2	¾	100	95	.35

Mfrs. No.	Size In.	Std Pkg.	Wt. Pkg.	Price Each
E3	1	50	70	$0.50
E4	1¼	20	60	.80
E5	1½	10	40	1.04
E6	2	5	30	2.14
E7	2½	5	45	4.20
E8	3	5	55	5.00
E9	3½	5	70	8.15
E10	4	5	80	9.00

Finishes and Assortments, see end of Condulet listings. Covers and Condulettos, see end of series. Wiring devices, pages 422 to 424, Condulet catalog No. 2000.

CONDULET BODIES—OBROUND SERIES

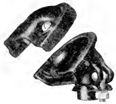
Black Enamel Finish

Types F and FE, for Service Entrance, take Obround Covers only. Types LB, LF and LL take Obround Covers, Obround Condulettos, or other Wiring Devices.

TYPE F

Mfrs. No	Size In	Std. Pkg.	Wt.Lbs. Std Pkg	Price Each
F1	½	100	100	**$0.35**
F2	¾	100	190	**.50**
F3	1	50	140	**.75**

TYPE FE



Mfrs. No	Size In.	Std. Pkg.	Wt Lbs. Std. Pkg	Price Each
FE1	½	100	220	**$0.50**
FE2	¾	100	240	**.65**
FE3	1	50	155	**1.05**
FE4	1¼	25	140	**1.64**
FE5	1½	10	75	**2.52**
FE6	2	5	65	**4.40**
FE7	2½	5	115	**8.20**
FE8	3	5	120	**10.20**
FE9	3½	5	175	**18.10**
FE10	4	5	180	**25.00**
FE011	4½	1	90	**55.00**
FE012	5	1	75	**57.00**
FE014	6	1	75	**60.00**

The most convenient type of Condulet for service entrance, as it permits the conductor to be pulled through without bending.

TYPE LB

Mfrs. No.	Size In	Std. Pkg.	Wt. Pkg.	Price Each
LB11	½	200	185	**$0.40**
LB22	¾	100	125	**.45**
LB33	1	50	90	**.65**
LB44	1¼	25	95	**$1.05**
LB55	1½	10	45	**1.40**
LB66	2	5	40	**2.50**
LB77	2½	5	50	**5.00**
LB88	3	5	65	**6.50**
LB99	3½	5	90	**10.50**
LB1010	4	5	100	**12.00**

TYPE LF

Mfrs. No	Size In.	Std. Pkg	Wt. Pkg.	Price Each
LF11	½	200	235	**$0.40**
LF22	¾	100	135	**.45**
LF33	1	50	110	**.65**
LF44	1¼	25	85	**$1.05**
LF55	1½	10	50	**1.40**
LF66	2	5	45	**2.50**
LF77	2½	5	60	**5.00**
LF88	3	5	75	**6.50**
LF99	3½	5	105	**10.50**
LF1010	4	5	120	**12.00**

TYPE LL

Mfrs. No	Size In.	Std. Pkg.	Wt. Pkg.	Price Each
LL11	½	200	185	**$0.40**
LL22	¾	100	125	**.45**
LL33	1	50	90	**.65**
LL44	1¼	25	95	**$1.05**
LL55	1½	10	45	**1.40**
LL66	2	5	40	**2.50**
LL77	2½	5	50	**5.00**
LL88	3	5	65	**6.50**
LL99	3½	5	90	**10.50**
LL1010	4	5	100	**12.00**

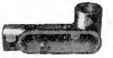
Finishes and Assortments, see end of Condulet listings. Types LB, LF, LL and LR Condulet bodies of the same size may be assorted to make a std. pkg. Covers and Condulettos, see end of series. Wiring devices, pages 422 to 424, Condulet catalog No. 2000.

CONDULET BODIES—OBROUND SERIES

Black Enamel Finish

Types LR, LBB, LFB, LLB and LRB take Obround Covers, Obround Condulettos, or other Wiring Devices.

TYPE LR



Mfrs. No.	Size In.	Std Pkg.	Wt Pkg.	Price Each
LR11	½	200	185	**$0.40**
LR22	¾	100	125	**.45**
LR33	1	50	90	**.65**
LR44	1¼	25	95	**$1.05**
LR55	1½	10	45	**1.40**
LR66	2	5	40	**2.50**
LR77	2½	5	50	**5.00**
LR88	3	5	65	**6.50**
LR99	3½	5	90	**10.50**
LR1010	4	5	100	**12.00**

TYPE LBB

Mfrs. No	Size In	Std Pkg	Wt. Pkg	Price Each
LBB11	½	100	100	**$0.40**
LBB22	¾	50	65	**.45**
LBB33	1	50	90	**.65**
LBB44	1¼	25	75	**$1.05**
LBB55	1½	10	45	**1.40**
LBB66	2	5	40	**2.50**
LBB77	2½	5	50	**5.00**
LBB88	3	5	70	**6.50**
LBB99	3½	5	90	**10.50**
LBB1010	4	5	100	**12.00**

TYPE LFB

Mfrs.No.	Size In.	Std Pkg.	Wt Pkg.	Each
LFB11	½	100	110	**$0.40**
LFB22	¾	50	75	**.45**
LFB33	1	50	95	**.65**
LFB44	1¼	25	80	**1.05**
LFB55	1½	10	50	**1.40**
LFB66	2	5	45	**2.50**
LFB77	2½	5	55	**5.00**
LFB88	3	5	75	**6.50**
LFB99	3½	5	100	**10.50**
LFB1010	4	5	110	**12.00**

TYPE LLB

Mfrs No	Size In	Std Pkg	Wt. Pkg	Price Each
LLB11	½	100	100	**$0.40**
LLB22	¾	50	65	**.45**
LLB33	1	50	90	**.65**
LLB44	1¼	25	75	**$1.05**
LLB55	1½	10	45	**1.40**
LLB66	2	5	40	**2.50**
LLB77	2½	5	50	**5.00**
LLB88	3	5	70	**6.50**
LLB99	3½	5	90	**10.50**
LLB1010	4	5	100	**12.00**

TYPE LRB

Mfrs No	Size In	Std Pkg.	Wt. Pkg	Price Each
LRB11	½	100	100	**$0.40**
LRB22	¾	50	65	**.45**
LRB33	1	50	90	**.65**
LRB44	1¼	25	75	**$1.05**
LRB55	1½	10	45	**1.40**
LRB66	2	5	40	**2.50**
LRB77	2½	5	50	**5.00**
LRB88	3	5	70	**6.50**
LRB99	3½	5	90	**10.50**
LRB1010	4	5	100	**12.00**

Types LBB, LFB, LLB and LRB Condulet bodies of the same size may be assorted to make a standard package.

CONDULET BODIES—OBROUND SERIES

Black Enamel Finish

TYPE T

Takes Obround Covers, Obround Condulettos, or other Wiring Devices. The cover or wiring device for a type T Condulet body is the same size as the hubs at the ends of the cover opening.

Mfrs. No.	Size of Mains, In.	Size of Branch In.	Std. Pkg.	Wt.Lbs. Std. Pkg.	Price Each
T111	½	½	100	130	**$0.48**
T121	½	¾	100	130	**.56**
T131	½	1	100	130	**.63**
T212	¾	½	75	120	**.57**
T222	¾	¾	75	120	**.57**
T232	¾	1	75	120	**.65**
T313	1	½	50	110	**.80**
T323	1	¾	50	110	**.80**
T333	1	1	50	110	**.80**
T414	1¼	½	20	70	**1.22**
T424	1¼	¾	20	70	**1.22**
T434	1¼	1	20	70	**1.22**
T444	1¼	1¼	20	70	**1.22**
T515	1½	½	10	45	**1.69**
T525	1½	¾	10	45	**1.69**
T535	1½	1	10	45	**1.69**
T555	1½	1½	10	45	**1.69**
T666	2	2	5	40	**2.55**

TYPE TA

Takes Obround Covers, Obround Condulettos, or other Wiring Devices.

Mfrs. No.	Size In.	Std. Pkg.	Wt. Pkg.	Price Each
TA1	½	50	75	**$0.70**
TA2	¾	50	95	**.75**
TA3	1	25	70	**1.00**
TA4	1¼	10	50	**1.55**
TA5	1½	10	75	**2.30**
TA6	2	5	45	**3.95**

TYPE TB

Takes Obround Covers, Obround Condulettos, or other Wiring Devices. The cover or wiring device for a type TB Condulet body is the same size as the hubs at the ends of the cover opening.

Mfrs. No.	Size of Mains, In.	Size of Branch, In.	Std. Pkg.	Wt. Pkg.	Price Each
TB111	½	½	100	130	**$0.48**
TB222	¾	¾	50	80	**.57**
TB232	¾	1	50	80	**.65**
TB313	1	½	25	60	**.80**
TB323	1	¾	25	60	**.80**
TB333	1	1	25	60	**.80**
TB444	1¼	1¼	10	40	**1.22**
TB555	1½	1½	10	10	**1.69**
TB666	2	2	5	45	**2.55**

Finishes and Assortments, see end of Condulet listing. Mfrs. Nos. TB222 and TB232 may be assorted to make a standard package. Mfrs. Nos. TB313, TB323 and TB333 may be assorted to make a standard package.

CONDULET BODIES—OBROUND SERIES

Black Enamel Finish

Types TL, TR, U and UB take Obround Covers, Obround Condulettos, or other Wiring Devices.

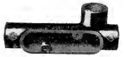
TYPE TL

Mfrs. No.	Size Ma. In	Size Br. In.	Std Pkg.	Wt Pkg.	Price Each
TL111	½	½	100	130	**$0.48**
TL121	½	¾	100	130	**.56**
TL131	½	1	100	130	**.63**

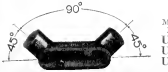
Mfrs. No.	Size of Mains, In.	Size of Branch, In.	Std. Pkg.	Wt. Pkg.	Price Each
TL212	¾	½	50	80	**$0.57**
TL222	¾	¾	50	80	**.57**
TL232	¾	1	50	80	**.65**
TL313	1	½	25	60	**.80**
TL323	1	¾	25	60	**.80**
TL333	1	1	25	60	**.80**
TL444	1¼	1¼	10	45	**1.22**
TL555	1½	1½	10	60	**1.69**

TYPE TR

Mfrs. No	Size Ma. In.	Size Br. In.	Std. Pkg.	Wt. Pkg.	Price Each
TR111	½	½	100	130	**$0.48**
TR121	½	¾	100	130	**.56**
TR131	½	1	100	130	**.63**



Mfrs. No.	Size of Mains, In.	Size of Branch, In.	Std. Pkg.	Wt. Pkg.	Price Each
TR212	¾	½	50	80	**$0.57**
TR222	¾	¾	50	80	**.57**
TR232	¾	1	50	80	**.65**
TR313	1	½	25	60	**.80**
TR323	1	¾	25	60	**.80**
TR333	1	1	25	60	**.80**
TR444	1¼	1¼	10	45	**1.22**
TR555	1½	1½	10	60	**1.69**



TYPE U

Mfrs. No.	Size In.	Std. Pkg.	Wt. Pkg.	Price Each
U11	½	100	100	**$0.48**
U22	¾	50	80	**.54**
U33	1	50	100	**.78**

Mfrs. No.	Size In.	Std. Pkg.	Wt. Pkg.	Price Each
U44	1¼	25	80	**$1.26**
U55	1½	10	60	**1.68**
U66	2	5	45	**3.00**
U77	2½	5	55	**6.00**
U88	3	5	70	**7.80**
U99	3½	5	90	**12.60**
U1010	4	5	100	**14.40**

TYPE UB

Mfrs. No.	Size In.	Std. Pkg.	Wt. Pkg.	Price Each
UB11	½	100	100	**$0.48**
UB22	¾	50	80	**.54**
UB33	1	50	100	**.78**

Mfrs. No.	Size In.	Std. Pkg.	Wt. Pkg.	Price Each
UB44	1¼	25	80	**$1.26**
UB55	1½	10	60	**1.68**
UB66	2	5	45	**3.00**
UB77	2½	5	55	**6.00**
UB88	3	5	70	**7.80**
UB99	3½	5	90	**12.60**
UB1010	4	5	100	**14.40**

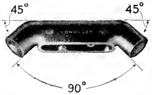
Finishes and Assortments, see end of Condulet listing. Types TL and TR with the same size cover opening may be assorted to make a standard package. Types U, UB and UF Condulet bodies of the same size may be assorted to make a standard package.

Covers and Condulettos, see end of series. Wiring devices, pages 422 to 424, Condulet catalog No. 2000.

CONDULET BODIES—OBROUND SERIES

Black Enamel Finish

Types UF, X and XA take Obround Covers, Obround Condulettos, or other Wiring Devices.



TYPE UF

Mfrs. No	Size In.	Std. Pkg.	Wt. Pkg	Price Each
UF11	½	100	110	**$0.48**
UF22	¾	50	85	**.54**
UF33	1	50	110	**.78**
UF44	1¼	25	85	**1.26**
UF55	1½	10	65	**$1.68**
UF66	2	5	50	**3.00**
UF77	2½	5	60	**6.00**
UF88	3	5	80	**7.80**
UF99	3½	5	100	**12.60**
UF1010	4	5	110	**14.40**

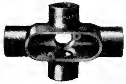
See opposite column for assortments.

TYPE X

The cover or wiring device for type X Condulet body is the same size as the largest hub.

Mfrs. No.	Size of Mains In.	Size of Branches In.	Std. Pkg.	Wt. Pkg.	Price Each
X1111	½, ½	½	75	105	**$0.60**
X2111	¾, ½	½	50	70	**.77**
X2112	¾, ¾	½	50	70	**.77**
X2222	¾, ¾	¾	50	70	**.77**
X3112	1, ¾	½	35	95	**1.05**
X3222	1, ¾	¾	35	95	**1.05**
X3113	1, 1	½	35	95	**1.05**
X3223	1, 1	¾	35	95	**1.05**
X3333	1, 1	1	35	95	**1.05**
X4113	1¼, 1	½	20	70	**1.40**
X4222	1¼, ¾	¾	20	70	**1.40**
X4223	1¼, 1	¾	20	70	**1.40**
X4333	1¼, 1	1	20	70	**1.40**
X4114	1¼, 1¼	½	20	70	**1.40**
X4224	1¼, 1¼	¾	20	70	**1.40**
X4444	1¼, 1¼	1¼	20	70	**1.40**

Note: In the above listing, the vertical hubs are the mains, and the horizontal hubs are the branches.



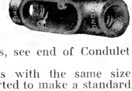
TYPE XA

Mfrs. No.	Size In.	Std Pkg	Wt. Pkg.	Price Each
XA1	½	50	70	**$1.00**
XA2	¾	50	80	**1.15**
XA3	1	25	60	**1.45**

TYPE TBE

Takes Obround Covers, Obround Condulettos, or other Wiring Devices.

M'frs. No.	Size In.	Std. Pkg.	Wt. Pkg.	Price Each
TBE2	¾	25	60	**$1.00**



Finishes and Assortments, see end of Condulet listing.

Type X Condulet bodies with the same size cover opening may be assorted to make a standard package.

Covers and Condulettos, see end of series. Wiring devices, pages 422 to 424, Condulet catalog No. 2000.

CONDULET COVERS

For Condulet Bodies—Obround Series
Furnished with Screws

PORCELAIN WITH WIRE HOLES

Mfrs. No.	Size of Cover, In.	Diam. of Hole, In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
		1 Wire—Standard			
11	½	13/32	200	50	**$0.10**
21	¾	13/32	100	35	**.15**
31	1	13/32	50	30	**.25**
41	1¼	13/32	25	25	**.36**
51	1½	1⅜	10	20	**.48**
61	2	1¾	5	15	**.60**
81	2½, 3	2 5/16	5	20	**.80**
91	3½, 4	3¼	5	30	**.90**
1401	4½, 5, 6	3¼	1	10	**2.00**
		1 Wire Duracord			
11D	½	17/32	200	50	**.10**
21D	¾	17/32	100	35	**.15**
		1 Wire—Special			
11S	½	⅝	200	50	**.10**
21S	¾	25/32	100	35	**.15**
31S	1	1	50	30	**.25**
41S	1¼	1⅛	25	25	**.36**
51S	1½	13/32	10	20	**.48**
61S	2	13/32	5	15	**.60**
81S	2½, 3	13/32	5	20	**.80**
91S	3½, 4	13/32	5	30	**.90**
		2 Wire			
12	½	⅜	200	50	**.10**
22	¾	15/32	100	35	**.15**
32	1	½	50	30	**.25**
42	1¼	11/16	25	25	**.36**
52	1½	13/16	10	20	**.48**
62	2	1	5	15	**.60**
82	2½, 3	1 7/16	5	20	**.80**
92	3½, 4	1 15/16	5	30	**.90**
1402	4½, 5, 6	2¼	1	10	**2.00**
		3 Wire			
13	½	5/16	200	50	**.10**
23	¾	15/32	100	35	**.15**
33	1	½	50	30	**.25**
43	1¼	11/16	25	25	**.36**
53	1½	13/16	10	20	**.48**
63	2	1	5	15	**.60**
83	2½, 3	1 7/16	5	20	**.80**
93	3½, 4	1 15/16	5	30	**.90**
1403	4½, 5, 6	2¼	1	10	**2.00**
		4 Wire			
1400	½	5/16	200	50	**.10**
2400	¾	5/16	100	35	**.15**
3400	1	13/32	50	30	**.25**
4400	1¼	17/32	25	25	**.36**
5400	1½	⅝	10	20	**.48**
6400	2	1	5	15	**.60**
8400	2½, 3	1 7/16	5	20	**.80**
9400	3½, 4	1 15/16	5	30	**.90**
1404	4½, 5, 6	1⅞	1	10	**2.00**
		5 Wire			
2500	¾	5/16	100	35	**.15**
3500	1	13/32	50	30	**.25**
4500	1¼	17/32	25	25	**.36**
5500	1½	⅝	10	20	**.48**
6500	2	13/16	5	15	**.60**
8500	2½, 3	1 1/16	5	20	**.80**
9500	3½, 4	1½	5	30	**.90**
1405	4½, 5, 6	1 9/16	1	10	**2.00**

See the following page for footnotes.

CONDULET COVERS

For Condulet Bodies—Obround Series
Furnished with Screws

PORCELAIN WITH WIRE HOLES

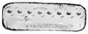
6 Wire

Mfrs. No.	Size of Cover, In.	Diam of Hole, In	Std. Pkg	Wt. Lbs Std. Pkg.	Price Each
2600	¾	5/16	100	35	$0.15
3600	1	⅜	50	30	.25
4600	1¼	½	25	25	.36
5600	1½	17/32	10	20	.48
6600	2	⅝	5	15	.60
8600	2½, 3	⅞	5	20	.80
9600	3½, 4	1 3/16	5	30	.90
1406	4½, 5, 6	1 5/16	1	10	2.00

7 Wire

Mfrs. No.	Size of Cover, In.	Diam of Hole, In	Std. Pkg	Wt. Lbs Std. Pkg.	Price Each
3700	1	11/32	50	30	.25
4700	1¼	7/16	25	25	.36
5700	1½	15/32	10	20	.48
6700	2	19/32	5	15	.60
8700	2½, 3	25/32	5	20	.80
9700	3½, 4	1	5	30	.90
1407	4½, 5, 6	1⅛	1	10	2.00

8 Wire



Mfrs. No.	Size of Cover, In.	Diam of Hole, In	Std. Pkg	Wt. Lbs Std. Pkg.	Price Each
3800	1	5/16	50	30	.25
4800	1¼	⅜	25	25	.36
5800	1½	13/32	10	20	.48
6800	2	½	5	15	.60
8800	2½, 3	21/32	5	20	80
9800	3½, 4	27/32	5	30	.90
1408	4½, 5, 6	1	1	10	2.00

9 Wire

Mfrs. No.	Size of Cover, In.	Diam of Hole, In	Std. Pkg	Wt. Lbs Std. Pkg.	Price Each
3900	1	19/64	50	30	.25
4900	1¼	21/64	25	25	.36
5900	1½	23/64	10	20	.48
6900	2	29/64	5	15	.60
8900	2½, 3	19/32	5	20	.80
9900	3½, 4	25/32	5	30	.90
1409	4½, 5, 6	⅞	1	10	2.00

COMPOSITION WITH WIRE HOLES—One Piece

1 Wire—Standard

Mfrs. No.	Size of Cover, In.	Diam of Hole, In	Std. Pkg	Wt. Lbs Std. Pkg.	Price Each
CF11	½	13/32	200	50	.20
CF21	¾	13/32	100	40	.30
CF31	1	13/32	50	30	.50
CF41	1¼	13/32	25	25	1.00
CF51	1½	1⅜	10	20	1.10
CF61	2	1¾	5	18	1.20
CF81	2½, 3	2 5/16	5	25	1.60
CF91	3½, 4	3¼	5	30	2.50
CF1401	4½, 5, 6	3¼	1	15	4.00

1 Wire—Special

Mfrs. No.	Size of Cover, In.	Diam of Hole, In	Std. Pkg	Wt. Lbs Std. Pkg.	Price Each
CF11S	½	⅝	200	50	.20
CF21S	¾	25/32	100	40	.30
CF31S	1	1	50	30	.50
CF41S	1¼	1⅛	25	25	1.00
CF51S	1½	13/32	10	20	1.10
CF61S	2	13/32	5	18	1.20
CF81S	2½, 3	13/32	5	25	1.60
CF91S	3½, 4	13/32	5	30	2.50

Finishes, see end of Condulet listing. Assortments: Black enameled, galvanized, and poreelain Obround eovers of the same size may be assorted to make a standard paekage, regardless of style of cover. Composition Obround covers of the same size may be assorted to make a standard paekage, regardless of style of cover.

CONDULET COVERS

For Condulet Bodies—Obround Series
Furnished with Screws

COMPOSITION WITH WIRE HOLES

One Piece

2 Wire

Mfrs. No.	Size of Cover, In.	Diam. of Hole, In.	Std. Pkg.	Wt Lbs Std Pkg	Price Each
CF12	½	⅜	200	50	$0.20
CF22	¾	15/32	100	40	.30
CF32	1	½	50	30	.50
CF42	1¼	11/16	25	25	1.00
CF52	1½	13/16	10	20	1.10
CF62	2	1	5	18	1.20
CF82	2½, 3	1 7/16	5	25	1.60
CF92	3½, 4	1 15/16	5	30	2.50
CF1402	4½, 5, 6	2¼	1	15	4.00

3 Wire

Mfrs. No.	Size of Cover, In.	Diam. of Hole, In.	Std. Pkg.	Wt Lbs Std Pkg	Price Each
CF13	½	⅜	200	50	.20
CF23	¾	15/32	100	40	.30
CF33	1	½	50	30	.50
CF43	1¼	11/16	25	25	1.00
CF53	1½	13/16	10	20	1.10
CF63	2	1	5	18	1.20
CF83	2½, 3	1 7/16	5	25	1.60
CF93	3½, 4	1 15/16	5	30	2.50
CF1403	4½, 5, 6	2¼	1	15	4.00

4 Wire

Mfrs. No.	Size of Cover, In.	Diam. of Hole, In.	Std. Pkg.	Wt Lbs Std Pkg	Price Each
CF1400	½	5/16	200	50	.20
CF2400	¾	5/16	100	40	.30
CF3400	1	13/32	50	30	.50
CF4400	1¼	17/32	25	25	1.00
CF5400	1½	⅝	10	20	1.10
CF6400	2	1	5	18	1.20
CF8400	2½, 3	1 7/16	5	25	1.60
CF9400	3½, 4	1 15/16	5	30	2.50
CF1404	4½, 5, 6	1⅞	1	15	4.00

5 Wire

Mfrs. No.	Size of Cover, In.	Diam. of Hole, In.	Std. Pkg.	Wt Lbs Std Pkg	Price Each
CF2500	¾	5/16	100	40	.30
CF3500	1	13/32	50	30	.50
CF4500	1¼	17/32	25	25	1.00
CF5500	1½	⅝	10	20	1.10
CF6500	2	13/16	5	18	1.20
CF8500	2½, 3	1 1/16	5	25	1.60
CF9500	3½, 4	1½	5	30	2.50
CF1405	4½, 5, 6	1 9/16	1	15	4.00

6 Wire

Mfrs. No.	Size of Cover, In.	Diam. of Hole, In.	Std. Pkg.	Wt Lbs Std Pkg	Price Each
CF2600	¾	5/16	100	40	.30
CF3600	1	⅜	50	30	.50
CF4600	1¼	½	25	25	1.00
CF5600	1½	17/32	10	20	1.10
CF6600	2	⅝	5	18	1.20
CF8600	2½, 3	⅞	5	25	1.60
CF9600	3½, 4	1 3/16	5	30	2.50
CF1406	4½, 5, 6	1 5/16	1	15	4.00

7 Wire

Mfrs. No.	Size of Cover, In.	Diam. of Hole, In.	Std. Pkg.	Wt Lbs Std Pkg	Price Each
CF3700	1	11/32	50	30	.50
CF4700	1¼	7/16	25	25	1.00
CF5700	1½	15/32	10	20	1.10
CF6700	2	19/32	5	18	1.20
CF8700	2½, 3	25/32	5	25	1.60
CF9700	3½, 4	1	5	30	2.50
CF1407	4½, 5, 6	1⅛	1	15	4.00

Finishes, see end of Condulet listing.

Assortments: Composition Obround eovers of the same size may be assorted to make a standard paekage, regardless of style of eover.

CONDULET COVERS
For Condulet Bodies—Obround Series
Furnished with Screws

COMPOSITION WITH WIRE HOLES
One Piece

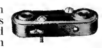
8 Wire

Mfrs. No.	Size of Cover, In.	Diam. of Hole, In.	Std. Pkg.	Wt Lbs. Std Pkg.	Price Each
CF3800	1	5/16	50	30	$0.50
CF4800	1¼	⅜	25	25	1.00
CF5800	1½	13/32	10	20	1.10
CF6800	2	½	5	18	1.20
CF8800	2½, 3	21/32	5	25	1.60
CF9800	3½, 4	27/32	5	30	2.50
CF1408	4½, 5, 6	1	1	15	4.00

9 Wire

Mfrs. No.	Size of Cover, In.	Diam. of Hole, In.	Std. Pkg.	Wt Lbs. Std Pkg.	Price Each
CF3900	1	19/64	50	30	.50
CF4900	1¼	21/64	25	25	1.00
CF5900	1½	23/64	10	20	1.10
CF6900	2	29/64	5	18	1.20
CF8900	2½, 3	19/32	5	25	1.60
CF9900	3½, 4	25/32	5	30	2.50
CF1409	4½, 5, 6	⅞	1	15	4.00

COMPOSITION WITH WIRE HOLES—Split



Split composition covers can be installed on Condulet bodies after the wires have been pulled in and connected up. They can be used to replace covers on existing installations when the number of wires in the conduit are to be changed, or to replace broken covers.

1 Wire

Mfrs. No.	Size of Cover, In.	Diam. of Hole, In.	Std. Pkg	Wt. Lbs. Std. Pkg.	Price Each
CFR11	½	⅝	200	50	$0.40
CFR21	¾	25/32	100	40	.60
CFR31	1	1	50	30	1.00
CFR41	1¼	1⅛	25	30	2.00
CFR51	1½	1⅜	10	25	2.20
CFR61	2	1¾	5	20	2.40

2 Wire

Mfrs. No.	Size of Cover, In.	Diam. of Hole, In.	Std. Pkg	Wt. Lbs. Std. Pkg.	Price Each
CFR12	½	⅜	200	50	.40
CFR22	¾	15/32	100	40	.60
CFR32	1	½	50	30	1.00
CFR42	1¼	11/16	25	30	2.00
CFR52	1½	13/16	10	25	2.20
CFR62	2	1	5	20	2.40

3 Wire

Mfrs. No.	Size of Cover, In.	Diam. of Hole, In.	Std. Pkg	Wt. Lbs. Std. Pkg.	Price Each
CFR13	½	⅜	200	50	.40
CFR23	¾	15/32	100	40	.60
CFR33	1	½	50	30	1.00
CFR43	1¼	11/16	25	30	2.00
CFR53	1½	13/16	10	25	2.20
CFR63	2	1	5	20	2.40

4 Wire

Mfrs. No.	Size of Cover, In.	Diam. of Hole, In.	Std. Pkg	Wt. Lbs. Std. Pkg.	Price Each
CFR14	½	5/16	200	50	.40
CFR24	¾	5/16	100	40	.60
CFR34	1	13/32	50	30	1.00
CFR44	1¼	17/32	25	30	2.00
CFR54	1½	⅝	10	25	2.20
CFR64	2	1	5	20	2.40

Finishes, see end of Condulet listing.

Assortments: Composition Obround covers of the same size may be assorted to make a standard package, regardless of style of cover.

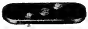
CONDULET COVERS
Black Enamel Finish
For Condulet Bodies—Obround Series
Furnished with Screws

BLANK METAL

Sheet Steel

Mfrs. No.	Size of Cover, In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
100	½	200	30	$0.08
200	¾	100	15	.11
300	1	50	10	.23
400	1¼	25	10	.32
500	1½	10	10	.45
600	2	5	5	.56
800	2½, 3	5	10	.75
900	3½, 4	5	15	.80

Cast Iron (Flat)



Mfrs. No.	Size of Cover, In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
100f	½	200	50	.16
200f	¾	100	40	.22
300f	1	50	30	.35
400f	1¼	25	25	.50
500f	1½	10	15	.70
600f	2	5	10	.90
800f	2½, 3	5	10	1.15
900f	3½, 4	5	15	1.25

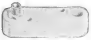
Cast Iron (Dome)

Mfrs. No.	Size of Cover, In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
100g	½	200	50	.16
200g	¾	100	40	.22
300g	1	50	30	.35
400g	1¼	25	25	.50
500g	1½	10	15	.70
600g	2	5	10	.90
800g	2½, 3	5	10	1.15
900g	3½, 4	5	15	1.25

BLANK COMPOSITION
Black Enamel Finish

Mfrs. No.	Size of Cover, In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
CF100	½	200	50	.20
CF200	¾	100	40	.30
CF300	1	50	30	.50
CF400	1¼	25	25	1.00
CF500	1½	10	20	1.10
CF600	2	5	18	1.20
CF800	2½, 3	5	25	1.60
CF900	3½, 4	5	30	2.50
CF1400	4½, 5, 6	1	15	4.00

PORCELAIN
For Drop Cord and Fixture Pull Switch



With one wire hole and ⅛-inch male nipple.

Mfrs No.	Size of Cover, In.	Diam. of Hole, In.	Std Pkg.	Wt Lb. Std. Pkg.	Price Each
191	½	13/32	200	55	$0.35
291	¾	13/32	100	40	.40
391	1	½	50	30	.50

For Weatherproof Socket—2 Wire

Mfrs No.	Size of Cover, In.	Diam. of Hole, In.	Std Pkg.	Wt Lb. Std. Pkg.	Price Each
14	½	5/16	200	50	.16
24	¾	5/16	100	35	.25
34	1	5/16	50	25	.40

Finishes, see end of Condulet listing.

Assortments: Black enameled, galvanized and porcelain Obround covers of the same size may be assorted to make a standard package, regardless of style of cover. Composition Obround covers of the same size may be assorted to make a standard package, regardless of style of cover.

CONDULET COVERS

Black Enamel Finish

For Condulet Bodies—Obround Series

Furnished with Screws

WITH BRASS NIPPLES

Sheet Steel—Male Nipple

⅛-Inch Nipple

Mfrs. No.	Size of Cover	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
15	½	200	40	$0.20
25	¾	100	25	.25
35	1	50	20	.35
45	1¼	25	15	.46
55	1½	10	10	.58

¼-Inch Nipple

113	½	200	40	.23
213	¾	100	25	.28
313	1	50	20	.38
413	1¼	25	15	.49
513	1½	10	10	.61

⅜-Inch Nipple

17	½	200	40	.25
27	¾	100	25	.30
37	1	50	20	.40
47	1¼	25	15	.51
57	1½	10	10	.63

½-Inch Nipple

215	¾	100	25	.35
315	1	50	20	.45
415	1¼	25	15	.56
515	1½	10	10	.68

Sheet Steel—Female Nipple

⅛-Inch Nipple

16	½	200	40	.20
26	¾	100	25	.25
36	1	50	20	.35
46	1¼	25	15	.46
56	1½	10	10	.58

¼-Inch Nipple

114	½	200	40	.23
214	¾	100	25	.28
314	1	50	20	.38
414	1¼	25	15	.49
514	1½	10	10	.61

⅜-Inch Nipple

18	½	200	40	.25
28	¾	100	25	.30
38	1	50	20	.40
48	1¼	25	15	.51
58	1½	10	10	.63

½-Inch Nipple

216	¾	100	25	.35
316	1	50	20	.45
416	1¼	25	15	.56
516	1½	10	10	.68

Finishes, see end of Condulet listing.

Assortments: Blaek enameled, galvanized and poreelain Obround eovers of the same size may be assorted to make a standard paekage, regardless of style of eover.

CONDULET COVERS

Black Enamel Finish

For Condulet Bodies—Obround Series

Furnished with Screws

WITH BRASS NIPPLES

Porcelain—Male Nipple

⅛-Inch Nipple

Mfrs. No.	Size of Cover	Std Pkg.	Wt. Lbs. Std Pkg.	Price Each
19	½	200	60	$0.25
29	¾	100	40	.30
39	1	50	30	.43
49	1¼	25	40	.58
59	1½	10	25	.72

¼-Inch Nipple

119	½	200	60	.30
219	¾	100	40	.35
319	1	50	30	.48
419	1¼	25	40	.63
519	1½	10	25	.77

⅜-Inch Nipple

111	½	200	60	.35
211	¾	100	40	.41
311	1	50	30	.53
411	1¼	25	40	.68
511	1½	10	25	.82

½-Inch Nipple

121	½	200	60	.40
221	¾	100	40	.46
321	1	50	30	.58
421	1¼	25	40	.73
521	1½	10	25	.87

Porcelain—Female Nipple

⅛-Inch Nipple

110	½	200	60	.25
210	¾	100	40	.30
310	1	50	30	.43
410	1¼	25	40	.58
510	1½	10	25	.72

¼-Inch Nipple

120	½	200	60	.30
220	¾	100	40	.35
320	1	50	30	.48
420	1¼	25	40	.63
520	1½	10	25	.77

⅜-Inch Nipple

112	½	200	60	.35
212	¾	100	40	.41
312	1	50	30	.53
412	1¼	25	40	.68
512	1½	10	25	.82

½-Inch Nipple

122	½	200	60	.40
222	¾	100	40	.46
322	1	50	30	.58
422	1¼	25	40	.73
522	1½	10	25	.87

Finishes, see end of Condulet listing.

Assortments: Blaek enameled, galvanized and poreelain Obround eovers of the same size may be assorted to make a standard package, regardless of style of cover.

OBROUND CONDULETTOS

For Condulet Bodies—Obround Series

Exceptions—Types BE, DF, F and FE take Obround Covers only. Type TM takes Obround Covers and only certain Obround Condulettos.*

Furnished with Screws

LAMP RECEPTACLES

The lamp receptacles are one-piece wiring devices and are equipped with a wire clamping feature which greatly simplifies the work of installation. Can be furnished with lamp grip at an advance in list price.

With Shade Holder Groove

Mfrs. No.	Size In.	Std. Pkg.	Wt Lbs. Std.Pkg.	Price Each
JR16	½	200	100	**$0.30**
JR26	¾	100	60	**.35**
JR36	1	50	55	**.40**

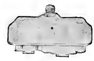
Without Shade Holder Groove

Mfrs. No.	Size In.	Std. Pkg.	Wt Lbs. Std.Pkg.	Price Each
JR17	½	200	100	**.25**
JR27	¾	100	60	**.30**
JR37	1	50	55	**.35**

FIXTURE ROSETTES

With ⅛-Inch Male Nipple

Mfrs. No.	Size In.	Std. Pkg	Wt.Lbs. Std Pkg.	Price Each
JR19	½	100	65	**$0.40**
JR29	¾	100	70	**.45**
JR39	1	50	45	**.50**

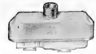


With ⅛-Inch Female Nipple

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std Pkg.	Price Each
JR18	½	100	65	**$0.40**
JR28	¾	100	70	**.45**
JR38	1	50	45	**.50**

With ⅜-Inch Male Nipple

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std Pkg.	Price Each
JR111	½	100	65	**$0.40**
JR211	¾	100	70	**.45**
JR311	1	50	45	**.50**



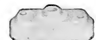
With ⅜-Inch Female Nipple

Mfrs. No.	Size In.	Std. Pkg.	Wt Lbs. Std.Pkg.	Price Each
JR112	½	100	65	**$0.40**
JR212	¾	100	70	**.45**
JR312	1	50	45	**.50**

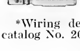
CORD ROSETTES

One Outlet

Mfrs. No.	Size In.	Std. Pkg.	Wt Lbs. Std Pkg.	Price Each
JR11	½	200	120	**$0.30**
JR21	¾	100	65	**.35**
JR31	1	50	50	**.40**



Two Outlets



Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std Pkg.	Price Each
JR131	½	100	60	**$0.35**
JR231	¾	100	65	**.40**
JR331	1	50	50	**.45**

*Wiring devices, pages 422 to 424, Condulet catalog No. 2000.

OBROUND CONDULETTOS

For Condulet Bodies—Obround Series

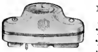
Exceptions—Types BE, DF, F and FE take Obround Covers only. Type TM takes Obround Covers and only certain Obround Condulettos.*

Furnished with Screws

POLARITY PLUG RECEPTACLES

Hubbell plug receptacle Condulettos, except polarity types, are arranged with double T slots and take Hubbell, "Spartan," or "Standard" plugs with parallel or tandem contact blades, or the Hubbell 10-ampere polarity plugs.

Hubbell, 6-Ampere



Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
JR125	½	100	60	**$0.40**
JR225	¾	100	70	**.45**
JR325	1	50	45	**.50**

Hubbell, 20-Ampere

Mfrs. No	Size In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
JR12	½	100	60	**$0.55**
JR22	¾	100	70	**.60**
JR32	1	50	45	**.65**

ATTACHMENT PLUG RECEPTACLES

Hubbell, 6-Ampere

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
JR15	½	100	60	**$0.40**
JR25	¾	100	70	**.45**
JR35	1	50	45	**.50**

GASKETS

For Obround Series

For use between Condulet bodies and Condulettos, sheet steel covers, cast iron flanged covers, BRL plug receptacle housings, or Obround adapters.

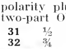
Mfrs. Gas-ket No.	Size In.	Std. Pkg.	Price Each	Mfrs. Gas-ket No.	Size In.	Std. Pkg.	Price Each
1	½	200	**$0.10**	**6**	2	25	**$0.25**
2	¾	100	**.10**	**8**	2½, 3	25	**.40**
3	1	50	**.15**	**9**	3½, 4	25	**.50**
4	1¼	25	**.20**	**86**	4½,5,6	25	**.70**
5	1½	25	**.20**	----	------	----	------

For use between Condulet bodies and sheet steel covers or cast iron dome covers.

158	½	200	**.10**	**163**	2	25	**.40**
159	¾	100	**.10**	**164**	2½, 3	25	**.60**
160	1	50	**.15**	**165**	3½, 4	25	**1.00**
161	1¼	25	**.20**	**166**	4½,5,6	25	**1.50**
162	1½	25	**.20**	-----	-------	----	-------

For use between cap and base of Obround Conduletto attachment or polarity plug receptacles, or any two-part Obround Condulettos.

31	½	200	**.10**	**33**	1	50	**.15**
32	¾	100	**.10**	----	------	----	------



For use between Condulet bodies and threaded couplings of type F or FE Condulets.

11	½	100	**.05**	**16**	2	25	**.15**
12	¾	100	**.05**	**17**	2½, 3	25	**.20**
13	1	50	**.08**	**19**	3½, 4	25	**.25**
14	1¼	25	**.10**	**98**	4½,5,6	25	**.50**
15	1½	25	**.10**	----	-------	----	------

*Wiring devices, pages 422 to 424, Condulet catalog No. 2000.

CONDULET BODIES—G-H SERIES

WITH ADJUSTABLE BAR

Black Enamel Finish

Take Covers or Round Base Wiring Devices
Furnished with Screws

TYPE G

Form 5

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std Pkg	Price Each
G151	½	100	120	$0.55
G252	¾	50	75	.65
G353	1	25	45	.90
Form 10				
G1101	½	50	55	.65
G2102	¾	25	50	.80
G3103	1	25	55	1.00
Form 20				
G1201	½	50	75	.90
G2202	¾	25	55	.95
G3203	1	25	65	1.20

TYPE GA

Form 5

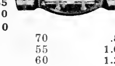
Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std. Pkg.	Price Each
GA151	½	100	125	$0.75
GA252	¾	50	90	.85
GA353	1	25	55	1.10
Form 10				
GA1101	½	50	70	.85
GA2102	¾	25	55	1.00
GA3103	1	25	60	1.20
Form 20				
GA1201	½	50	75	1.10
GA2202	¾	25	65	1.20
GA3203	1	25	70	1.50

TYPE GL

Form 5

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std. Pkg.	Price Each
GL151	½	100	120	$0.60
GL252	¾	50	75	.70
GL353	1	25	40	.95
Form 10				
GL1101	½	50	55	.70
GL2102	¾	25	50	.85
GL3103	1	25	50	1.05
Form 20				
GL1201	½	50	75	.95
GL2202	¾	25	55	1.05
GL3203	1	25	65	1.35

TYPE GT



Form 5

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std. Pkg.	Price Each
GT151	½	100	125	$0.75
GT252	¾	50	90	.85
GT353	1	25	55	1.10
Form 10				
GT1101	½	50	70	.85
GT2102	¾	25	55	1.00
GT3103	1	25	60	1.20
Form 20				
GT1201	½	50	75	1.10
GT2202	¾	25	65	1.20
GT3203	1	25	70	1.50

Finishes, see end of Condulet listing.

Special Assortment: Any assortment of 250 black enameled and galvanized Condulet bodies of the G-H series with adjustable bar will be considered a standard package. Covers, see end of series. Wiring devices, pages 414 to 417, Condulet catalog No. 2000.

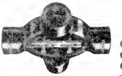
CONDULET BODIES—G-H SERIES

WITH ADJUSTABLE BAR

Black Enamel Finish

Take Covers or Round Base Wiring Devices
Furnished with Screws

TYPE GX



Form 5

Mfrs No.	Size In	Std Pkg.	Wt.Lbs. Std Pkg	Price Each
GX151	½	100	155	$0.90
GX252	¾	50	100	1.00
GX353	1	25	60	1.35
Form 10				
GX1101	½	50	75	1.00
GX2102	¾	25	60	1.15
GX3103	1	25	70	1.45
Form 20				
GX1201	½	50	75	1.25
GX2202	¾	25	70	1.40
GX3203	1	25	75	1.80

TYPE H

Form 5

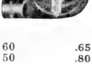
Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs Std Pkg.	Price Each
H15	½	100	115	$0.45
H25	¾	50	70	.55
H35	1	25	40	.80
Form 10				
H110	½	50	50	.55
H210	¾	25	45	.70
H310	1	25	50	.90
Form 20				
H120	½	50	70	.80
H220	¾	25	50	.85
H320	1	25	55	1.10

TYPE HA

Form 5

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
HA15	½	100	115	$0.50
HA25	¾	50	70	.60
HA35	1	25	40	.85
Form 10				
HA110	½	50	50	.60
HA210	¾	25	45	.75
HA310	1	25	50	.95
Form 20				
HA120	½	50	70	.85
HA220	¾	25	50	.90
HA320	1	25	55	1.20

TYPE HH



Form 5

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std. Pkg.	Price Each
HH151	½	100	120	$0.55
HH252	¾	50	75	.65
HH353	1	25	50	.90
Form 10				
HH1101	½	50	60	.65
HH2102	¾	25	50	.80
HH3103	1	25	55	1.00
Form 20				
HH1201	½	50	75	.90
HH2202	¾	25	60	.95
HH3203	1	25	65	1.20

Finishes, see end of Condulet listing.

Special Assortment: Any assortment of 250 black enameled and galvanized Condulet bodies of the G-H series with adjustable bar will be considered a standard package. Wiring devices, pages 414 to 417, Condulet catalog No. 2000.

CONDULET BODIES—G-H SERIES

WITH ADJUSTABLE BAR

Black Enamel Finish

Take Covers or Round Base Wiring Devices
Furnished with Screws

TYPE HHC

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std. Pkg.	Price Each
Form 5				
HHC151	½	100	125	$0.75
HHC252	¾	50	80	.85
HHC353	1	25	55	1.10
Form 10				
HHC1101	½	50	75	.85
HHC2102	¾	25	55	1.00
HHC3103	1	25	65	1.20
Form 20				
HHC1201	½	50	80	1.10
HHC2202	¾	25	65	1.20
HHC3203	1	25	75	1.50

TYPE HLA

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std. Pkg.	Price Each
Form 5				
HLA15	½	100	120	$0.60
HLA25	¾	50	75	.70
HLA35	1	25	50	.95
Form 10				
HLA110	½	50	60	.70
HLA210	¾	25	50	.85
HLA310	1	25	55	1.05
Form 20				
HLA120	½	50	75	.95
HLA220	¾	25	60	1.05
HLA320	1	25	65	1.35

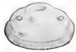
Finishes, see end of Condulet listing.

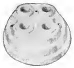
Wiring devices, page 414 to 417, Condulet catalog No. 2000.

CONDULET COVERS

For Condulet Bodies—G-H Series With Adjustable Bar, Z Series, and Types FH and FHF
Furnished with Screws

PORCELAIN WITH WIRE HOLES





Mfrs. No.	Form	Diam. Hole In.	Std. Pkg.	Wt.Lbs. Std. Pkg.	Price Each
1 Wire					
5101	5, 10	$\frac{13}{32}$	100	40	$0.15
201	20	$\frac{13}{32}$	50	40	.35
2 Wire					
5102	5, 10	$\frac{5}{16}$	100	40	.15
202	20	$\frac{5}{16}$	50	40	.35
3 Wire					
5103	5, 10	$\frac{5}{16}$	100	40	$0.15
203	2	$\frac{5}{16}$	50	40	.35
4 Wire					
510400	5, 10	$\frac{5}{16}$	100	40	.15
20400	20	$\frac{5}{16}$	50	40	.35

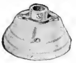
Finishes, see end of Condulet listing.

Assortment: Black enameled, galvanized, and porcelain covers of the same size may be assorted to make a standard package, regardless of style of cover.

CONDULET COVERS

For Condulet Bodies—G-H Series With Adjustable Bar, Z Series, and Types FH and FHF
Furnished with Screws

PORCELAIN WITH BRASS NIPPLE



Mfrs. No.	Form	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
⅛-Inch Male				
5109	5, 10	100	45	$0.25
209	20	50	45	.45
¼-Inch Male				
51019	5, 10	100	45	.30
2019	20	50	45	.50
⅜-Inch Male				
51011	5, 10	100	45	.35
2011	20	50	45	.60
½-Inch Male				
51021	5, 10	100	45	.40
2021	20	50	45	.65
⅛-Inch Female				
51010	5, 10	100	45	$0.25
2010	20	50	45	.45
¼-Inch Female				
51020	5, 10	100	45	.30
2020	20	50	45	.50
⅜-Inch Female				
51012	5, 10	100	45	.35
2012	20	50	45	.60
½-Inch Female				
51022	5, 10	100	45	.40
2022	20	50	45	.65

SHEET STEEL WITH BRASS NIPPLE

Black Enamel Finish

Mfrs. No	Form	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
⅛-Inch Male				
5105	5, 10	100	30	$0.20
205	20	50	35	.30
¼-Inch Male				
51013	5, 10	100	30	.25
2013	20	50	35	.35
⅜-Inch Male				
5107	5, 10	100	30	.30
207	20	50	35	.40
½-Inch Male				
51015	5, 10	100	30	.35
2015	20	50	35	.45
⅛-Inch Female				
5106	5, 10	100	30	$0.20
206	20	50	35	.30
¼-Inch Female				
51014	5, 10	100	30	.25
2014	20	50	35	.35
⅜-Inch Female				
5108	5, 10	100	30	.30
208	20	50	35	.40
½-Inch Female				
51016	5, 10	100	30	.35
2016	20	50	35	.45

BLANK METAL

Mfrs. No.	Form	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
Sheet Steel—Black Enamel Finish				
51000	5, 10	100	20	$0.10
2000	20	50	20	.25
Cast Iron—Black Enamel Finish				
51000g	5, 10	100	30	.20
2000g	20	50	30	.35

Finishes, see end of Condulet listing.

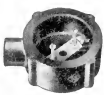
Special Assortment: Any assortment of 250 black enameled, galvanized, and porcelain covers of the G-H series with adjustable bar will be considered a standard package.

CONDULET BODIES—GS SERIES

Iron—Black Enamel Finish

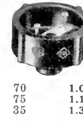
Take Covers, Fixtures, Vaporproof Fixtures, Plug Receptacle Housings, Connection Blocks, or Fuse Blocks. Furnished with Fastening Strap and Screws for Wiring Devices.

TYPE GS



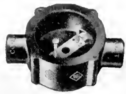
Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std. Pkg.	Price Each
Form 5				
GS15	½	25	65	$0.90
GS25	¾	25	70	1.05
GS35	1	10	30	1.25
Form 10				
GS110	½	25	70	1.00
GS210	¾	25	75	1.15
GS310	1	10	35	1.35
Form 20				
GS120	½	25	90	1.50
GS220	¾	25	95	1.65
GS320	1	10	45	1.85

TYPE GSA



Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std. Pkg.	Price Each
Form 5				
GSA15	½	25	65	$0.90
GSA25	¾	25	70	1.05
GSA35	1	10	30	1.25
Form 10				
GSA110	½	25	70	1.00
GSA210	¾	25	75	1.15
GSA310	1	10	35	1.35
Form 20				
GSA120	½	25	90	1.50
GSA220	¾	25	95	1.65
GSA320	1	10	45	1.85

TYPE GSC



Mfrs. No.	Size In.	Std. Pkg.	Wt Lbs. Std. Pkg.	Price Each
Form 5				
GSC15	½	25	70	$1.00
GSC25	¾	25	75	1.15
GSC35	1	10	30	1.35
Form 10				
GSC110	½	25	75	1.10
GSC210	¾	25	80	1.25
GSC310	1	10	35	1.45
Form 20				
GSC120	½	25	95	1.60
GSC220	¾	25	100	1.75
GSC320	1	10	50	1.95

TYPE GSS

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std. Pkg.	Price Each
Form 5				
GSS15	½	25	70	$1.00
GSS25	¾	25	75	1.15
GSS35	1	10	30	1.35
Form 10				
GSS110	½	25	75	1.10
GSS210	¾	25	80	1.25
GSS310	1	10	35	1.45
Form 20				
GSS120	½	25	95	1.60
GSS220	¾	25	100	1.75
GSS320	1	10	50	1.95

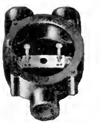
Finishes and Assortments, see end of Condulet listing. Special Assortment: Any assortment of 100 black enameled and galvanized iron Condulet bodies of the GS series, except two and three-gang, will be considered a standard package. Covers and Accessories, see end of series. Wiring devices, pages 419 and 420, Condulet catalog No. 2000.

CONDULET BODIES—GS SERIES

Iron—Black Enamel Finish

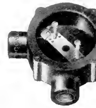
Take Covers, Fixtures, Vaporproof Fixtures, Plug Receptacle Housings, Connection Blocks, or Fuse Blocks. Furnished with Fastening Strap and Screws for Wiring Devices.

TYPE GSSC



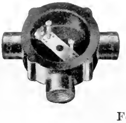
Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std. Pkg.	Price Each
Form 5				
GSSC15	½	25	75	$1.20
GSSC25	¾	25	80	1.35
GSSC35	1	10	35	1.55
Form 10				
GSSC110	½	25	80	1.30
GSSC210	¾	25	85	1.50
GSSC310	1	10	40	1.70
Form 20				
GSSC120	½	25	100	1.80
GSSC220	¾	25	105	2.00
GSSC320	1	10	55	2.30

TYPE GSL



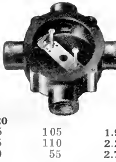
Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std. Pkg.	Price Each
Form 5				
GSL15	½	25	70	$1.00
GSL25	¾	25	75	1.15
GSL35	1	10	30	1.35
Form 10				
GSL110	½	25	75	1.10
GSL210	¾	25	80	1.25
GSL310	1	10	?5	1.45
Form 20				
GSL120	½	25	95	1.60
GSL220	¾	25	100	1.75
GSL320	1	10	50	1.95

TYPE GST



Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std. Pkg.	Price Each
Form 5				
GST15	½	25	75	$1.20
GST25	¾	25	80	1.35
GST35	1	10	35	1.55
Form 10				
GST110	½	25	80	1.30
GST210	¾	25	85	1.50
GST310	1	10	40	1.70
Form 20				
GST120	½	25	100	1.80
GST220	¾	25	105	2.00
GST320	1	10	55	2.30

TYPE GSX



Mfrs. No	Size In.	Std. Pkg.	Wt.Lbs. Std. Pkg.	Price Each
Form 5				
GSX15	½	25	80	$1.35
GSX25	¾	25	85	1.50
GSX35	1	10	35	1.80
Form 10				
GSX110	½	25	85	1.45
GSX210	¾	25	90	1.70
GSX310	1	10	40	2.10
Form 20				
GSX120	½	25	105	1.95
GSX220	¾	25	110	2.20
GSX320	1	10	55	2.70

Finishes and Assortments, see end of Condulet listing. Special Assortment: Any assortment of 100 black enameled and galvanized iron Condulet bodies of the GS series, except two and three-gang, will be considered a standard package. Covers and Accessories, see end of series. Wiring devices, pages 419 and 420, Condulet catalog No. 2000.

CONDULET BODIES—GS SERIES

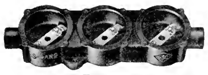
Iron—Black Enamel Finish

Take Covers, Fixtures, Vaporproof Fixtures, Plug Receptacle Housings, Connection Blocks, or Fuse Blocks. Furnished with Fastening Straps and Screws for Wiring Devices.

WITH LUGS, THREE-GANG
TYPE GSE

Mfrs. No	Size In.	Std. Pkg	Wt. Lbs. Std. Pkg	Price Each
Form 5				
GSE1539	½	25	215	$3.15
GSE2539	¾	25	225	3.60
GSE3539	1	10	100	4.20
Form 10				
GSE1139	½	25	230	3.45
GSE2139	¾	25	240	3.90
GSE3139	1	10	115	4.50
Form 20				
GSE1239	½	25	290	4.95
GSE2239	¾	25	300	5.40
GSE3239	1	10	145	6.00

TYPE GSC



Mfrs. No	Size In.	Std. Pkg	Wt Lbs. Std Pkg.	Price Each
Form 5				
GSC1539	½	25	230	$3.45
GSC2539	¾	25	240	3.90
GSC3539	1	10	105	4.50
Form 10				
GSC1139	½	25	245	3.75
GSC2139	¾	25	255	4.20
GSC3139	1	10	120	4.80
Form 20				
GSC1239	½	25	305	5.25
GSC2239	¾	25	375	5.70
GSC3239	1	10	160	6.30

Finish and Assortments, see end of Condulet listing. Special assortment: Any assortment of 50 black enameled or galvanized iron Condulet bodies of the GS series with lugs, three-gang, will be considered a standard package. Covers and Accessories, see end of series. Wiring devices, pages 419 and 420, Condulet catalog No. 2000.

COVERS AND ACCESSORIES

Iron—Black Enamel Finish

For Condulet Bodies—GS Series

Furnished with Gaskets and Screws

SWITCH COVERS—VAPORPROOF

Mfrs. No.	Std. Pkg	Wt.Lbs. Std Pkg.	Price Each
Form 5			
GS58	25	40	$1.30
Form 10			
GS108	25	55	1.40
Form 20			
GS208	25	65	2.00

Finishes and Assortments, see end of Condulet listing.

Special Assortments: Any assortment of 100 black enameled and galvanized iron covers of the GS series will be considered a standard package.

COVERS AND ACCESSORIES

Iron—Black Enamel Finish

For Condulet Bodies—GS Series

Furnished with Screws

HUB COVERS—VAPORPROOF

Mfrs. No.	Size Hub, In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
Form 5				
GS53	⅜	25	40	$0.60
GS54	½	25	40	.60
Form 10				
GS13	⅜	25	50	.70
GS14	½	25	50	.70
Form 20				
GS23	⅜	25	65	1.00
GS24	½	25	65	1.00

BLANK COVERS—VAPORPROOF

Mfrs. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
Form 5			
GS50	25	35	$0.50
Form 10			
GS100	25	45	.60
Form 20			
GS200	25	60	.90

LAMP RECEPTACLE COVERS

Take Composition Receptacle GS126 or GS127. Furnished with Gaskets and Screws for Receptacles.

Form 10

Receptacle fastened to inside of cover

Mfrs. No.	Std Pkg.	Wt Lbs. Std Pkg.	Price Each
GS109	25	30	$0.60

Form 10

Receptacle fastened to outside of cover.

Mfrs. No	Std. Pkg.	Wt.Lbs. Std Pkg.	Price Each
GS106	25	30	$0.80

SWITCH COVERS

For Hart & Hegeman Tumbler Switches

Mfrs No.	Std Pkg.	Wt Lbs. Std Pkg.	Price Each
GS113	25	35	$0.40
For Hubbell Toggle Switches			
GS114	25	35	.40

COVERS WITH SCREW CAP

Take Hubbell Attachment Plugs and Receptacles

Form 5

GS532 and GS132 take Receptacles 5624, 5896 and Plugs 5700, 6095, 6628.

Mfrs. No	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
GS532	25	30	$0.50
Form 10			
GS132	25	40	$0.60

Form 5

GS533 and GS133 take Receptacle 5624 and Plug 6328.

GS533	25	30	.50
Form 10			
GS133	25	40	.60

Finishes and Assortments, see end of Condulet listing. Special Assortment: Any assortment of 100 black enameled and galvanized iron covers of the GS series will be considered a standard package.

PLUG RECEPTACLE HOUSINGS TYPE BRG

Iron—Black Enamel Finish

For Conduit Bodies—GS Series

*30 Amp., 250 Volt A. C.

2-Pole Housings are furnished with 30-ampere, 250-volt Receptacles BR1302 or BR302, which take 2-Pole Plugs. 3-Pole Housings are furnished with 30-ampere, 250-volt Receptacles BR1303 or BR303, which take 3-Pole Plugs.

PLAIN HOUSINGS

Furnished with Receptacles and Screws

2 Pole—With Receptacle BR1302

Mfrs. No.	Form	Wt.Lbs. Std. Pkg.	Price Each
BRG5302	5	45	$2.50

2 Pole—With Receptacle BR302

BRG1302	10	50	2.60
BRG2302	20	80	3.10

3 Pole—With Receptacle BR1303

BRG1303	10	60	3.25

3 Pole—With Receptacle BR303

BRG2303	20	85	3.75

THREADED HOUSINGS—WITH BRASS CAP

Furnished with Receptacles, Gaskets and Screws

2 Pole—With Receptacle BR 1302

Mfrs. No.	Form	Wt.Lbs Std. Pkg.	Price Each
BRG58302	5	65	$3.65

2 Pole—With Receptacle BR302

BRG18302	10	70	3.75
BRG28302	20	100	4.25

3 Pole—With Receptacle BR1303

BRG18303	10	85	4.85

3 Pole—With Receptacle BR303

BRG28303	20	115	5.35

SPRING DOOR HOUSINGS

Furnished with Receptacles and Screws

2 Pole—With Receptacle BR1302

Mfrs. No.	Form	Wt.Lbs. Std.Pkg.	Price Each
BRG56302	5	80	$4.10

2 Pole—With Receptacle BR302

BRG16302	10	85	4.20
BRG26302	20	115	4.70

3 Pole—With Receptacle BR 1303

BRG16303	10	95	5.05

3 Pole—With Receptacle BR 303

BRG26303	20	125	5.55

Standard Package, 25.

*Can be used on D. C. circuits of the same rating if circuit is broken before plug is withdrawn.

Finishes, see end of Conduit listing.

Special Assortment: Any assortment of 25 black enameled and galvanized type BRG plug receptacle housings will be considered a standard package.

Plugs, see opposite column.

TYPE BP PLUGS

Cast Iron Handles—Black Enamel Finish

For Types BRD, BRG, BRM and BRY Plug Receptacle Housings

*30 Ampere, 250 Volt, A. C.

FOR FLEXIBLE CONDUCTOR

Non-Watertight

For No. 8 Flexible Cable

2 Pole

Mfrs. No.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
BP4302	25	35	$2.85

3 Pole

BP4303	25	40	3.75

With Clamping Nut and Gland Watertight

For No. 8 Deck Cable

2 Pole

Mfrs. No.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
BP8302	25	60	$4.50

3-Pole

BP8303	25	85	5.50

FOR FLEXIBLE CONDUIT OR ARMORED CONDUCTOR

Non-Watertight

2 Pole

For ½-inch Flexible Conduit or No. 8BX Conductor.

Mfrs. No.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
BP5302	25	45	$3.20

3 Pole

For ½-inch Flexible Conduit or No. 8BX3 Conductor

Mfrs. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
BP5303	25	50	$4.00

With Clamping Nut—Non-Watertight

2 Pole

For ½-inch Flexible Conductor or No. 8BX Conductor.

Mfrs. No.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
BP3302	25	50	$3.75

3 Pole

For ½-inch Flexible Conductor or No. 8BX3 Conductor.

Mfrs. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
BP7303	25	70	$4.75

FOR RIGID CONDUIT

Non-Watertight—½-Inch

2 Pole

Mfrs. No.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
BP51302	25	40	$2.75

3 Pole

BP51303	25	50	4.00

With Clamping Nut Watertight—½-Inch

2 Pole

Mfrs. No.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
BP71302	25	50	$3.25

3 Pole

BP71303	25	65	4.75

*Can be used on D. C. circuits of the same rating if circuit is broken before plug is withdrawn.

Finishes and Assortments, see end of Conduit listing. Special Assortment: Any assortment of 25 black enameled and galvanized type BP plugs listed above will be considered a standard package.

VAPORPROOF FIXTURES—GS SERIES

Iron—Black Enamel Finish

For Form 20 Condulet Bodies—GS Series

Form 75 takes 75-watt Mazda C lamps, 60-watt Mazda B lamps, or any lamp not exceeding 2¾ x 6⅛ inches. Form 200 takes 200-watt Mazda C lamps, 100-watt Mazda B lamps, or any lamp not exceeding 3¾ x 8⅜ inches. Furnished with receptacle, gaskets, globe, guard and screws.

PENDENT

Form 75

Complete with globe V75 and guard V759.

Mfrs. No.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
GS675	25	180	**$6.10**

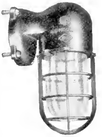
Form 200

Complete with globe V200 and guard V2009.

Mfrs. No.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
GS8200	25	230	**6.80**

BRACKET

(Can be used with Connection or Fuse Block)



Form 75

Complete with globe V75 and guard V759.

Mfrs. No	Std. Pkg	Wt.Lbs. Std.Pkg.	Price Each
GS775	25	180	**$6.10**

Form 200

Complete with globe V200 and guard V2009.

Mfrs. No	Std. Pkg	Wt.Lbs. Std.Pkg.	Price Each
GS9200	25	230	**6.80**

Globes—Vaporproof fixtures are regularly furnished with clear globes. If specified on the order, colored globes will be substituted at an advance in the list prices.

CONDULET BODIES—FS SERIES

Black Enamel Finish

SHALLOW TYPE

Take Covers, Shallow Flush Rectangular Wiring Devices, or Plug Receptacle Housings. Overall dimensions of Body exclusive of Hubs: Length, 4 9/32 in.; width, 2¾ in.; depth, 1⅞ in. Furnished with Screws for Wiring Devices.

TYPE FS

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
FS1	½	50	100	**$0.65**
FS2	¾	50	105	**.75**
FS3	1	25	60	**.85**

TYPE FSA

Mfrs. No.	Size In.	Std Pkg.	Wt Lbs Std Pkg.	Price Each
FSA1	½	50	100	**$0.65**
FSA2	¾	50	105	**.75**
FSA3	1	25	60	**.85**

Finishes and Assortments, see end of Condulet listing. Special Assortment: Any assortment of 200 black enameled and galvanized Condulet bodies of the FS series, except two-gang tandem, and two, three and four gang, will be considered a standard package.

Wiring Devices: Plug Receptacle Housings, on a following page; other wiring devices, pages 412 to 414, Condulet catalog No. 2000.

CONDULET BODIES—FS SERIES

Black Enamel Finish

SHALLOW TYPE

Take Covers, Shallow Flush Rectangular Wiring Devices, or Plug Receptacle Housings. Overall dimensions of Body exclusive of Hubs—Length, 4 9/32 in.; width, 2¾ in.; depth, 1⅞ in. Furnished with Screws for Wiring Devices.

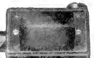
TYPE FSC

Mfrs. No.	Size In.	Std. Pkg.	Wt Lbs. Std. Pkg	Price Each
FSC1	½	50	110	**$0.75**
FSC2	¾	50	115	**.90**
FSC3	1	25	65	**1.10**

TYPE FSL

Mfrs. No.	Size In.	Std. Pkg	Wt Lbs. Std Pkg	Price Each
FSL1	½	50	110	**$0.75**
FSL2	¾	50	115	**.90**
FSL3	1	25	65	**1.10**

TYPE FSR



Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs Std.Pkg	Price Each
FSR1	½	50	110	**$0.75**
FSR2	¾	50	115	**.90**
FSR3	1	25	65	**1.10**

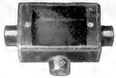
TYPE FSS

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
FSS1	½	50	110	**$0.75**
FSS2	¾	50	115	**.90**
FSS3	1	25	65	**1.10**

TYPE FSCC

Mfrs. No.	Size In.	Std. Pkg.	Wt. Lbs. Std Pkg.	Price Each
FSCC1	½	50	115	**$1.00**
FSCC21	¾,½*	50	120	**1.25**
FSCC31	1,½*	25	70	**1.45**

TYPE FSCT



Mfrs. No.	Size In	Std. Pkg.	Wt Lbs. Std. Pkg	Price Each
FSCT1	½	50	115	**$1.00**
FSCT2	¾	50	120	**1.25**
FSCT3	1	25	70	**1.45**

TYPE FST

Mfrs. No.	Size In.	Std Pkg.	Wt Lbs Std.Pkg	Price Each
FST1	½	50	115	**$1.00**
FST2	¾	50	120	**1.25**
FST3	1	25	70	**1.45**

TYPE FSX

Mfrs. No.	Size In.	Std. Pkg.	Wt Lbs. Std. Pkg.	Price Each
FSX1	½	50	120	**$1.20**
FSX2	¾	50	125	**1.50**
FSX3	1	25	80	**1.70**

*The hubs at the right in the illustration are ½-inch.

Wiring Devices: Plug Receptacle Housings, on a following page; other wiring devices, pages 412 to 414, Condulet catalog No. 2000.

Note—Type FSC is also made in 2, 3 and 4 gang.

CONDULET BODIES—FS SERIES
TWO-GANG TANDEM
Black Enamel Finish

Take Covers, Shallow Flush Reetangular Wiring Deviees, or Plug Reeeptaele Housings. Overall dimensions of Body exelusive of Hubs—Length, 9 9/32 in.; width, 2¾ in.; depth, 1⅞ in. Furnished witr Serews for Wiring Deviees.

TYPE FS

Mfrs. No	Size In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
FS17	½	50	200	**$1.65**
FS27	¾	25	120	**1.75**
FS37	1	10	60	**1.85**

TYPE FSC

Mfrs. No	Size In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
FSC17	½	50	230	**$1.75**
FSC27	¾	25	130	**1.85**
FSC37	1	10	70	**1.95**

Finishes and Assortments, see end of Condulet listing. Speeial Assortment: Any assortment of 75 blaek enameled and galvanized Condulet bodies of the FS series, two-gang tandem, will be considered a standard package.

Wiring Devices: Plug Reeeptacle Housings on a following page; other wiring deviees, pages 412 to 414, Condulet eatalog No. 2000.

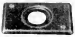
CONDULET COVERS
Sheet Steel—Black Enamel Finish
SURFACE TYPE

For Condulet Bodies of the FS Series, FS Series, Two-gang Tandem, and Type FH. Furnished with Screws.

For Single Push Button Switches

Mfrs. No	Std Pkg.	Wt Lbs Std. Pkg.	Price Each
DS7	50	25	**$0.15**

For Round Flush Receptacles

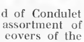


Mfrs. No.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
DS21	50	25	**$0.25**

Double Push Button, Double Push Button Momentary Contact, and Double Push Lock Switches; and Flush Receptacles

Mfrs. No.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
DS8	50	25	**$0.15**

For Hubbell 6-Ampere Polarity Flush Receptacle



Mfrs. No.	Std. Pkg.	Wt Lbs. Std.Pkg.	Price Each
DS22	50	25	**$0.25**

Finishes and Assortments, see end of Condulet listing. Speeial Assortment: Any assortment of 200 black enameled and galvanized eovers of the FS series will be eonsidered a standard paekage.

CONDULET COVERS
Sheet Steel—Black Enamel Finish
SURFACE TYPE

For Condulet Bodies of the FS Series, FS Series, Two-gang Tandem, and Type FH. Furnished with Serews.

For Rotary Flush Switches

Mfrs. No.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
DS9	50	25	**$0.15**

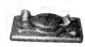
For "Standard" Duplex Flush Receptacles

Mfrs. No.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
DS23	50	25	**$0.30**

For Round Flush Receptacles

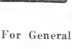
Mfrs. No.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
DS10	50	25	**$0.60**

For Round Flush Receptacles With Spring Door—Cast Iron



Mfrs. No.	Std. Pkg.	Wt.Lbs. Std Pkg.	Price Each
DS10g	50	45	**$1.25**

For Hubbell 20-Ampere Polarity Flush Receptacle

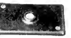


Mfrs. No.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
DS12	50	25	**$0.20**

For General Electric Tumbler Flush Switches

Mfrs. No.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
DS32	50	25	**$0.15**

For Hart & Hegeman Tumbler Flush Switches

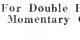


Mfrs. No.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
DS27	50	25	**$0.15**

Blank Sheet Steel

Mfrs. No	Std. Pkg.	Wt Lbs. Std.Pkg.	Price Each
DS100	50	25	**$0.10**
Blank Cast Iron—With Gasket			
DS100g	50	40	**.25**

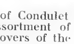
For Bryant Toggle Flush Switches



Mfrs. No.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
DS33	50	25	**$0.15**

For Double Push Button, Double Push Button Momentary Contact, and Double Push Lock Switches

Cast Iron—With Guard



Mfrs. No.	Std. Pkg	Wt.Lbs. Std.Pkg.	Price Each
DS8g	50	40	**$0.35**

Finishes and Assortments, see end of Condulet listing. Speeial Assortment: Any assortment of 200 blaek enameled and galvanized eovers of the FS series will be considered a standard package.

CONDULET COVERS

Cast Iron—Black Enamel Finish

VAPORPROOF

With Switch Operating Mechanism

For Condulet Bodies of the FS, FS Two-Gang Tandem, and ZF Series. Furnished with Gasket and Screws.

SURFACE OR FLUSH TYPE

For Double Push Button Switches

Mfrs. No.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
DS108	25	40	$1.75

For Momentary Contact Switches

Mfrs. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
DS107	25	40	$1.75

Finishes and Assortments, see end of Condulet listing. Special Assortment: Any assortment of 200 black enameled, galvanized and vaporproof covers of the FS series will be considered a standard package. Wiring devices, pages 412 to 414, Condulet catalog No. 2000.

PLUG RECEPTACLE HOUSINGS TYPE BRD

Black Enamel Finish

For Condulet Bodies of the FS, FS Two-Gang Tandem and ZF Series

***30 Amp., 250 Volt, A. C.**

PLAIN HOUSINGS

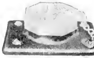
Furnished with Receptacle and Screws

Mfrs. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
2 Pole			
BRD302	25	70	$2.60
3 Pole			
BRD303	25	75	3.10

THREADED HOUSINGS—WITH BRASS CAP

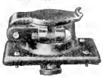
Furnished with Receptacle, Gaskets and Screws

Mfrs. No.	Std. Pkg.	Wt Lbs Std.Pkg.	Price Each
2 Pole			
BRD8302	25	90	$3.75
3 Pole			
BRD8303	25	105	4.70



SPRING DOOR HOUSINGS

Furnished with Receptacle, Gaskets and Screws



Mfrs. No	Std. Pkg.	Wt Lbs. Std.Pkg.	Price Each
2 Pole			
BRD6302	25	100	$4.20
3 Pole			
BRD6303	25	110	4.90

*Can be used on D. C. circuits of the same rating if circuit is broken before plug is withdrawn.

Special Assortment: Any assortment of 25 black enameled and galvanized type BRD plug receptacle bousings will be considered a standard package.

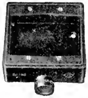
Plugs, see end of GS series.

CONDULET BODIES—FS SERIES

Black Enamel Finish

TWO-GANG, SHALLOW TYPE

Take Covers and Flush Rectangular Wiring Devices. Overall dimensions of Body exclusive of Hubs—Length, 4 9/32 in.; width, 4⅝ in.; depth, 1⅞ in. Furnished with Screws for Wiring Devices.

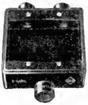


TYPE FS, TWO-GANG

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
FS12	½	50	140	$1.20
FS22	¾	25	75	1.30
FS32	1	10	35	1.40

TYPE FSC, TWO-GANG

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
FSC12	½	50	150	$1.30
FSC222	¾	25	85	1.40
FSC32	1	10	45	1.55



TYPE FSD, TWO-GANG

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
FSD12	½	50	160	$1.45
FSD212	¾-½†	25	90	1.55
FSD312	1-½†	10	50	1.65

†The hubs at the top in the illustration are ½-inch.

Finishes and Assortments, see end of Condulet listing.

Special Assortment: Any assortment of 100 black enameled and galvanized Condulet bodies of the FS series, two-gang, will be considered a standard package.

Wiring devices, pages 412 to 414, Condulet catalog No. 2000.

CONDULET TWO-GANG COVERS

Black Enamel Finish

SURFACE TYPE

For Condulet Bodies of the FS Series, Two-Gang Furnished with Screws

Cast Iron—With Guard

For Double Push Button, Double Push Button Momentary Contact, and Double Push Lock Switches

Mfrs. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
S82g	50	50	$0.65

Sheet Steel

For Double Push Button, Double Push Button Momentary Contact, and Double Push Lock Switches; and Flush Receptacles

Mfrs. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
S82	50	30	$0.30

CONDULET TWO-GANG COVERS

Sheet Steel—Black Enamel Finish

SURFACE TYPE

For Condulet Bodies of the FS Series, Two-Gang Furnished with Screws

For Rotary Flush Switches

Mfrs. No	Std. Pkg.	Wt. Lbs. Std. Pkg	Price Each
S92	50	30	**$0.30**

For Western Electric Flush Switches (Tumbler)

Mfrs. No	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
S252	50	30	**$0.30**

For Bryant Toggle Flush Switches

Mfrs. No.	Std. Pkg.	Wt Lbs Std.Pkg.	Price Each
S332	50	30	**$0.30**

For Hart & Hegeman Tumbler Flush Switches

Mfrs. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
S272	50	30	**$0.30**

Blank Sheet Steel

Mfrs. No	Std Pkg.	Wt Lbs Std. Pkg.	Price Each
S1002	50	30	**$0.20**
Blank Cast Iron—With Gasket			
S1002g	50	55	**.50**

Wiring devices, pages 412 to 414, Condulet catalog No. 2000.

VAPORPROOF

With Switch Operating Mechanism

For Condulet Bodies of the FS Series, Two-Gang Furnished with Gaskets and Screws

SURFACE OR FLUSH TYPE

For Double Push Button Switches

Cast Iron—Black

Mfrs No	Std. Pkg.	Wt Lbs. Std. Pkg.	Price Each
DS1082	25	75	**$3.00**

Finishes and Assortments, see end of Condulet listing.

Switches, page 414, Condulet catalog No. 2000.

Special Assortment: Any assortment of 100 black enameled, galvanized and vaporproof covers of the FS series, 2-gang, will be considered a standard package.

CONDULET BODIES—FS SERIES

Black Enamel Finish

THREE GANG, SHALLOW TYPE

Take Covers and Flush Rectangular Wiring Devices. Overall dimensions of Body exclusive of Hubs—Length, 4½ in.; width, 6½ in.; depth, 1⅞ in. Furnished with Screws for Wiring Devices.

TYPE FS, THREE-GANG

Mfrs. No	Size In.	Wt. Lbs. Std. Pkg.	Std. Pkg.	Price Each
FS23	¾	25	100	**$1.80**
FS33	1	10	40	**1.95**

TYPE FSC, THREE-GANG

Mfrs. No	Size In.	Wt. Lbs. Std. Pkg.	Std. Pkg.	Price Each
FSC 23	¾	25	105	**$1.90**
FSC333	1	10	45	**2.05**

Finishes and Assortments, see end of Condulet listing. Special Assortment: Any assortment of 75 black enameled and galvanized Condulet bodies of the FS series, three-gang, will be considered a standard package.

Wiring devices, pages 412 to 414, Condulet catalog No. 2000.

CONDULET THREE-GANG COVER

Sheet Steel—Black Enamel Finish

SURFACE TYPE

For Condulet Bodies of the FS Series, Three-Gang Furnished with Screws

For General Electric Tumbler Flush Switches

Mfrs. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
S323	50	25	**$0.45**

For Bryant Toggle Flush Switches

Mfrs. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
S333	50	25	**$0.45**

For Double Push Button Receptacles

Sheet Steel

Mfrs. No	Std Pkg.	Wt. Lbs Std. Pkg.	Price Each
S83	25	25	**$0.45**
Cast Iron—With Guard			
S83g	25	50	**1.00**

For Rotary Flush Switches

Mfrs. No	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
S93	25	25	**$0.45**

Blank Sheet Steel

Mfrs. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
S1003	25	25	**$0.40**
Black Cast Iron—With Gasket			
S1003g	25	50	**.75**

Finishes and Assortments, see end of Condulet listing. Special Assortment: Any assortment of 75 black enameled and galvanized covers of the FS series, three-gang, will be considered a standard package.

Wiring devices, pages 413 and 414, Condulet catalog No. 2000.

CONDULET BODIES—J-K SERIES

Black Enamel Finish

Take Norbitt Condulettos or Blank Cover

TYPE J

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
J1	½	100	130	**$0.60**
J2	¾	50	75	**.75**
J3	1	25	40	**1.05**

TYPE JA

Mfrs. No.	Size In.	Std. Pkg.	Wt Lbs. Std.Pkg.	Price Each
JA1	½	100	130	**$0.70**
JA2	¾	50	75	**.85**
JA3	1	25	40	**1.15**

TYPE JB

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
JB1	½	100	140	**$0.70**
JB2	¾	50	80	**.85**
JB3	1	25	50	**1.15**

TYPE JT

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
JT1	½	100	170	**$0.95**
JT2	¾	50	90	**1.05**
JT3	1	25	55	**1.15**

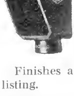
TYPE K

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
K1	½	100	100	**$0.50**
K2	¾	50	60	**.65**
K3	1	25	40	**.95**

TYPE KC

Mfrs. No.	Size In.	Std Pkg	Wt Lbs Std Pkg	Price Each
KC1	½	100	135	**$0.60**
KC2	¾	50	75	**.75**
KC3	1	25	45	**1.05**

TYPE KD



Mfrs. No.	Size In	Std. Pkg.	Wt Lbs Std.Pkg	Price Each
KD1	½	100	135	**$0.60**
KD2	¾	50	75	**.75**
KD3	1	25	45	**1.05**

Finishes and Assortments, see end of Condulet listing.

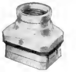
Speeial Assortment: Any assortment of 250 blaek enameled and galvanized Condulet bodies of the J-K series will be eonsidered a standard package.

NORBITT CONDULETTOS

For Condulet Bodies—J-K Series

Furnished with Gasket and Fastening Screw

LAMP RECEPTACLES



With Shade Holder Groove

Mfrs. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
CC227g	200	130	**$0.45**
Without Shade Holder Groove			
CC227	200	130	**.40**

PLUG RECEPTACLES

Hubbell Attachment—6-Ampere

Mfrs. No.	Std. Pkg.	Wt. Lbs Std. Pkg.	Price Each
CC5	100	60	**$0.50**

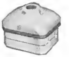
Hubbell Polarity—20-Ampere

Mfrs. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
CC20	100	60	**$0.65**

CORD ROSETTE

Mfrs. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
CC332	200	140	**$0.35**

FIXTURE ROSETTE



With ⅛-Inch Female Nipple

Mfrs. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
CC338	100	60	**$0.40**

If specified on order, lamp receptacle with lamp grip will be furnished at an advanee in list price.

These Condulettos, exeept polarity types, are arranged with double T slots and take Hubbell, "Spartan" or "Standard" plugs with parallel or tandem contaet blades, or the Hubbell 10-ampere polarity plugs.

CONDULET BODIES—RJ-RK SERIES

With Elliptical Openings—Black Enamel Finish

Take Elliptical Covers, Elliptieal Condulettos, or 2-Pole Plug Reeeptaele Housings.

TYPE RJ

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs Std Pkg	Price Each
RJ1	½	100	100	**$0.50**
RJ2	¾	50	60	**.60**
RJ3	1	25	40	**.90**

TYPE RK

Mfrs. No	Size In.	Std. Pkg	Wt Lbs. Std.Pkg.	Price Each
RK1	½	100	80	**$0.40**
RK2	¾	50	50	**.55**
RK3	1	25	35	**.80**

TYPE RJB

Mfrs. No	Size In	Std. Pkg.	Wt Lbs Std Pkg.	Price Each
RJB1	½	100	100	**$0.70**
RJB2	¾	50	60	**.80**
RJB3	1	25	40	**.90**

Finishes and Assortments, see end of Condulet listing.

Speeial Assortment: Any assortment of 250 blaek enameled and galvanized Condulet bodies of the RJ-RK series will be eonsidered a standard paekage.

PLUG RECEPTACLE CONDULETS—QE SERIES

Black Enamel Finish

FORMS 1066 and 2066, WITH SPRING DOOR

2-Pole Condulets are furnished with 30-Ampere, 250-Volt Receptacle RQH302, which takes Plug RQ302. 3-Pole Condulets are furnished with 30-Ampere, 250-Volt Receptacle RQH303, which takes Plug RQ303.

TYPE QEE

Mfrs. No.	Size In.	Std. Pkg.	Wt. Lbs. Std Pkg.	Price Each
2 Pole				
QEE11066	½	25	115	$4.60
QEE21066	¾	25	125	4.70
3 Pole				
QEE22066	¾	25	195	6.65
QEE32066	1	25	205	6.75

TYPE QEF

Mfrs. No.	Size In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
2 Pole				
QEF11066	½	25	125	$4.75
QFF21066	¾	25	135	4.85
3 Pole				
QEF22066	¾	25	225	6.80
QEF32066	1	25	235	6.90

TYPE QED

M'frs. No	Size In.	Wt. Lbs Std. Pkg.	Price Each
2 Pole			
QED11066	½	130	$5.05
QED21066	¾	140	5.15
3 Pole			
QED22066	¾	230	7.10
QED32066	1	240	7.20

Standard Package, 25.

TYPE QEG

Mfrs. No	Size In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
2 Pole				
QEG11066	½	25	135	$4.80
QEG21066	¾	25	145	4.90
3 Pole				
QEG22066	¾	25	235	6.90
QEG32066	1	25	245	7.00

TYPE QEJ

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
2 Pole				
QEJ11066	½	25	135	$4.90
QEJ21066	¾	25	145	5.00
3. Pole				
QEJ22066	¾	25	235	6.95
QEJ32066	1	25	245	7.05

Finishes and Assortments, see end of Condulet listing.

Special Assortment: Any assortment of 25 black enameled and galvanized Condulets of the QE series, Forms 1066 and 2066, will be considered a standard package.

Plugs, see end of QE series, forms 106 and 206.

PLUG RECEPTACLE CONDULETS—QE SERIES

Black Enamel Finish

FORMS 106 and 206

2-Pole Condulets are furnished with 30-ampere, 250-volt Receptacle RQH302, which takes Plug RQ302. 3-Pole Condulets are furnished with 30-ampere, 250-volt Receptacle RQH303, which takes RQ303.

TYPE QEE

Mfrs No	Size In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
2 Pole				
QEE1106	½	25	90	$3.80
QEE2106	¾	25	95	3.90
3 Pole				
QEE2206	¾	25	165	5.65
QEE3206	1	25	175	5.75

TYPE QEF

Mfrs No	Size In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
2 Pole				
QEF1106	½	25	100	$3.95
QEF2106	¾	25	105	4.05
3 Pole				
QEF2206	¾	25	195	5.80
QEF3206	1	25	205	5.90

TYPE QED

Mfrs No	Size In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
2 Pole				
QED1106	½	25	105	$4.25
QED2106	¾	25	110	4.35
3 Pole				
QED2206	¾	25	200	6.10
QED3206	1	25	210	6.20

TYPE QEG

Mfrs. No	Size In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
2 Pole				
QEG1106	½	25	110	$4.00
QEG2106	¾	25	115	4.10
3 Pole				
QEG2206	¾	25	205	5.90
QEG3206	1	25	215	6.00

TYPE QEJ

Mfrs. No	Size In.	Std. Pkg.	Wt. Lbs. Std Pkg	Price Each
2 Pole				
QEJ1106	½	25	110	$4.10
QEJ2106	¾	25	115	4.20
3 Pole				
QEJ2206	¾	25	205	5.95
QEJ3206	1	25	215	6.05

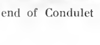
Special Assortment: Any assortment of 25 black enameled and galvanized Condulets of the QE series, Forms 106 and 206, will be considered a standard package.

TYPE RQ PLUGS

Aluminum Handles

30 Ampere, 250 Volt

For RQH, RQJ and RYQ Receptacles



Mfrs. No.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
2 Pole			
RQ302	25	30	$3.50
3 Pole			
RQ303	25	40	5.00

Finishes and Assortments, see end of Condulet listing.

PLUG RECEPTACLE CONDULETS
QE SERIES

Black Enamel Finish

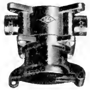
FORM 66036, WITH SPRING DOOR

Furnished with 3-Pole, 60-Ampere, 600-Volt Receptacle BR6036, which takes Plug BP46036.

TYPE QE

Mfrs No	Size In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
QE266036	¾	10	90	$9.35
QE366036	1	10	95	9.45
QE466036	1¼	10	100	9.55

TYPE QEC



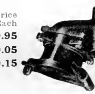
Mfrs. No.	Size In.	Wt. Lbs. Std. Pkg.	Price Each
QEC266036	¾	95	$9.45
QEC366036	1	100	9.55
QEC466036	1¼	105	9.65

Standard Package, 10.

TYPE QEE

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
QEE266036	¾	10	90	$9.50
QEE366036	1	10	95	9.60
QEE466036	1¼	10	100	9.70

TYPE QED



Mfrs. No.	Size In.	Wt. Lbs. Std. Pkg.	Price Each
QED266036	¾	110	$9.95
QED366036	1	115	10.05
QED466036	1¼	120	10.15

Standard Package, 10.

TYPE QEJ

Mfrs No	Size In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
QEJ266036	¾	10	110	$9.80
QEJ366036	1	10	115	9.90
QEJ466036	1¼	10	120	10.00

Special Assortment: Any assortment of 25 black enameled and galvanized Condulets of the QE series, Form 66036, will be considered a standard package.

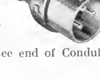
TYPE BP PLUG

Cast Iron Handle—Black Enamel Finish

3-Pole, 60-Ampere, 600-Volt

For QE Series, Forms 66036 and 86036

For No. 4 Deck or Armored Cable.



Mfrs. No.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
BP46036	10	45	$7.75

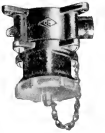
Finishes and Assortments, see end of Condulet listing.

PLUG RECEPTACLE CONDULETS
QE SERIES

Black Enamel Finish

FORM 86036

Furnished with 3-Pole, 60-Ampere, 600-Volt Receptacle BR6036, which takes Plug BP46036.

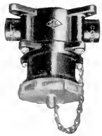


TYPE QE

Mfrs. No.	Size In.	Wt.Lbs. Std.Pkg.	Price Each
QE186036	½	85	$10.25
QE286036	¾	90	10.35
QE386036	1	95	10.45

Standard Package, 10.

TYPE QEC



Mfrs. No.	Size In.	Wt.Lbs. Std.Pkg	Price Each
QEC186036	½	90	$10.35
QEC286036	¾	95	10.45
QEC386036	1	100	10.55

Standard Package, 10.

TYPE QEE

Mfrs. No.	Size In.	Wt.Lbs Std.Pkg.	Price Each
QEE186036	½	85	$10.40
QEE286036	¾	90	10.50
QEE386036	1	95	10.60

Standard Package, 10.

TYPE QED

Mfrs. No.	Size In.	Wt.Lbs Std.Pkg.	Price Each
QED186036	½	105	$10.85
QED286036	¾	110	10.95
QED386036	1	115	11.05

Standard Package, 10.

TYPE QEJ

Mfrs. No.	Size In.	Wt.Lbs. Std Pkg.	Price Each
QEJ186036	½	105	$10.70
QEJ286036	¾	110	10.80
QEJ386036	1	115	10.90

Standard Package, 10.

Special Assortment: Any assortment of 25 black enameled and galvanized condulets of the QE series, Form 86036, will be considered a standard package.

Plug, see opposite column.

TYPE MKS CONDULETS

Without Hub Plates

INTERLOCKING SAFETY SWITCH AND PLUG RECEPTACLE CONDULETS

Black Enamel Finish

The MKS series of interlocking safety switches and plugs is for use with portable electrical appliances such as welding machines, rivet heaters, motor-driven machines, or for similar purposes where switches and plugs are used.

The type MKS Condulet consists of a safety switch and a plug receptacle. The receptacle and switch are so interlocked that the plug cannot be withdrawn unless the switch is open, nor can the switch be closed unless the plug is fully inserted. The plug contacts are protected by a shell or sleeve which is cast as an integral part of the aluminum handle. Therefore, these plugs are able to withstand an unusual amount of hard usage.

Takes conduit hub plates and type DP interlocking plugs. Furnished with fusible knife switch arranged for cartridge fuses and spring door plug receptacle housing. If specified, will be furnished without spring door at following reductions: 60 ampere, **$1.75**; 100 ampere, **$2.50**; 200 ampere, **$3.50**.

60 Ampere—250 Volt

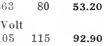
Mfrs. No.	No. Poles	Takes Plugs	Wt.Lb. Std.Pkg.	Price Each
MKS1662	2	DP 162, DP 362	55	**$43.00**
MKS1663	3	DP 163, DP 363	60	**47.20**
		100 Ampere—250 Volt		
MKS16102	2	DP1102, DP3102	95	**78.00**
MKS16103	3	DP1103, DP3103	100	**89.30**
		30 Ampere—500 Volt		
MKS16335	3	DP 163, DP 363	80	**53.20**
		60 Ampere—500 Volt		
MKS16635	3	DP 163, DP 363	80	**53.20**
		100 Ampere—500 Volt		
MKS161035	3	DP1103, DP3105	115	**92.90**

Packed one in a standard package.

CONDUIT HUB PLATES

Cast Iron—Black Enamel Finish

For 60, 100 and 200 ampere, 250 volt, and all 500 volt, alternating current, type MKS Condulet bodies.



One Hub

Mfrs. No.	Size In.	Std Pkg.	Pkg. Wt.	Price Each	Mfrs. No.	Size In.	Std Pkg.	Pkg. Wt.	Price Each
MF1	½	15	35	**$0.95**	**MF6**	2	15	45	**$1.45**
MF2	¾	15	35	**1.05**	**MF7**	2½	15	100	**3.10**
MF3	1	15	35	**1.15**	**MF8**	3	15	105	**3.20**
MF4	1¼	15	40	**1.25**	**MF9**	3½	15	115	**3.30**
MF5	1½	15	40	**1.35**	.....	.....	....	.....	.....

TYPE MKS CONDULETS

INTERLOCKING PLUGS FOR TYPE MKS CONDULETS

Aluminum Handles—Scratch Brush Finish

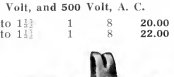
For round flexible cord or cable. Will also take small flexible conduit or armored conductor.

60 Amp., 250 V., and 30 or 60 Amp., 500 V., A. C.

Mfrs. No.	No. Poles	O. S. Diam. of Cable	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
DP162	2	⅝ to 1 1/16	10	20	**$7.50**
DP163	3	⅝ to 1 1/16	10	20	**8.00**

100 Ampere, 250 Volt, and 500 Volt, A. C.

DP1102	2	½ to 1 1/32	1	8	**20.00**
DP1103	3	½ to 1 1/32	1	8	**22.00**



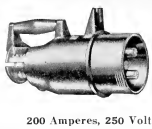
For flexible conduit or armored conductor. Will also take large round flexible cable.

60 Amp., 250 V., and 30 or 60 Amp., 500 V., A. C.

Mfrs. No.	No. Poles	O. S. Diam. of Cable	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
DP363	2	1 1/16 to 1 13/32	10	20	**$7.50**
DP363	3	1 1/16 to 1 13/32	10	20	**8.00**

100 Ampere, 250 Volt, and 500 Volt, A. C.

DP3102	2	1 1/16 to 2 1/16	1	8	**20.00**
DP3103	3	1 1/16 to 2 1/16	1	8	**22.00**



For round flexible cord or cable. Will also take small flexible conduit or armored conductor.

200 Amperes, 250 Volt, and 500 Volt, A. C.

Mfrs. No.	No. Poles	O. S. Diam. of Cable	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
DP1202	2	1 1/16 to 1 13/32	1	15	**$45.00**
DP1203	3	1 1/16 to 1 13/32	1	15	**50.00**

For flexible conduit or armored conductor. Will also take large round flexible cable.

200 Amperes, 250 Volt, and 500 Volt, A. C.

Mfrs. No.	No. Poles	O. S. Diam. of Cable	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
DP3202	2	1 1/16 to 2 1/16	1	15	**$45.00**
DP3203	3	1 1/16 to 2 1/16	1	15	**50.00**

VAPORPROOF CONDULETS—V AND VH SERIES

CLAMP GUARD

Iron—Black Enamel Finish

V Series takes 75-Watt Mazda C Lamps, 60-Watt Mazda B Lamps, or any Lamp not exceeding 2¾ x 6⅛ Inches.

VH Series takes 200-Watt Mazda C Lamps, 100-Watt Mazda B Lamps, or any Lamp not exceeding 3¾ x 8⅜ Inches.

Furnished with Receptacle, Sealing Plate, Gaskets, Globe, and Guard.

TYPE V

Complete with Globe V75 and Guard V97.

Mfrs. No.	Size, In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
V189	½	25	120	**$4.50**
V289	¾	25	130	**4.55**
V389	1	10	65	**4.60**

TYPE VH

Complete with Globe V200 and Guard VH99.

VH189	½	25	160	**5.40**
VH289	¾	25	170	**5.45**
VH389	1	10	90	**5.50**

TYPE VA

Complete with Globe V75 and Guard V97.

Mfrs. No	Size, In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
VA189	½	25	120	**$4.50**
VA289	¾	25	130	**4.55**
VA389	1	10	65	**4.60**

TYPE VHA

Complete with Globe V200 and Guard VH99.

VHA189	½	25	160	**5.40**
VHA289	¾	25	170	**5.45**
VHA389	1	10	90	**5.50**

TYPE VC

Complete with Globe V75 and Guard V97.

Mfrs. No.	Size, In.	Std. Pkg.	Wt Lbs. Std Pkg.	Price Each
VC1189	½	25	125	**$4.60**
VC2289	¾	25	135	**4.70**
VC3389	1	10	70	**4.80**

TYPE VHC

Complete with Globe V200 and Guard VH99.

VHC1189	½	25	165	**5.50**
VHC2289	¾	25	175	**5.60**
VHC3389	1	10	90	**5.65**

If specified on the order, lamp receptacle with lamp grip will be furnished at an advance in the list price.

Finishes and Assortments, see end of Condulet listing.

Special Assortments: Any assortment of 100 black enameled and galvanized iron Condulets of the V and VH series, clamp guard, will be considered a standard package.

Condulets are regularly furnished with clear globes. If specified on the order, colored globes will be substituted at the diffcrence in the list prices.

Accessories and Parts, see end of series. Wiring devices, page 432, Condulet catalog No. 2000.

VAPORPROOF CONDULETS—V AND VH SERIES

CLAMP GUARD

Iron—Black Enamel Finish

V Series takes 75-Watt Mazda C Lamps, 60-Watt Mazda B Lamps, or any Lamp not exceeding 2¾ x 6⅛ Inches.

VH Series takes 200-Watt Mazda C Lamps, 100-Watt Mazda B Lamps, or any Lamp not exceeding 3¾ x 8⅜ Inches.

Furnished with Receptacle, Sealing Plate, Gaskets, Globe, and Guard.

TYPE VL

Complete with Globe V75 and Guard V97.

Mfrs. No.	Size, In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
VL1189	½	25	125	**$4.60**
VL2289	¾	25	135	**4.70**
VL3389	1	10	70	**4.80**

TYPE VHL

Complete with Globe V200 and Guard VH99.

VHL1189	½	25	165	**5.50**
VHL2289	¾	25	175	**5.60**
VHL3389	1	10	90	**5.65**

TYPE VT

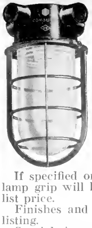
Complete with Globe V75 and Guard V97.

Mfrs. No.	Size, In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
VT11189	½	25	130	**$4.75**
VT22289	¾	25	140	**4.85**
VT33389	1	10	75	**5.05**

TYPE VHT

Complete with Globe V200 and Guard VH99.

VHT11189	½	25	170	**5.60**
VHT22289	¾	25	180	**5.75**
VHT33389	1	10	95	**5.85**



TYPE VX

Complete with Globe V75 and Guard V97.

Mfrs. No.	Size, In.	Std Pkg.	Wt.Lbs. Std.Pkg.	Price Each
VX111189	½	25	135	**$4.85**
VX222289	¾	25	145	**5.05**
VX333389	1	10	75	**5.20**

TYPE VHX

Complete - ith Globe V200 and Guard VH99.

VHX111189	½	25	175	**5.70**
VHX222289	¾	25	185	**5.90**
VHX333389	1	10	95	**6.05**

If specified on the order, lamp receptacle with lamp grip will be furnished at an advance in the list price.

Finishes and Assortments, see end of Condulet listing.

Special Assortments: Any assortment of 100 black enameled and galvanized iron Condulets of the V and VH series, clamp guard, will be considered a standard package.

Condulets are regularly furnished with clear globes. If specified on the order, colored globes will be substituted at the difference in the list prices.

Accessories and Parts, see end of series. Wiring devices, page 432, Condulet catalog No. 2000.

VAPORPROOF CONDULETS
V AND VH SERIES
CLAMP GUARD
Iron—Black Enamel Finish

V Series takes 75-Watt Mazda C Lamps, 60-Watt Mazda B Lamps, or any Lamp not exceeding 2¾ x 6⅛ Inches.

VH Series takes 200-Watt Mazda C Lamps, 100-Watt Mazda B Lamps, or any Lamp not exceeding 3¾ x 8⅜ Inches.

Furnished with Receptacle, Sealing Plate, Gaskets, Globe, and Guard.

TYPE VE

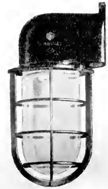
Complete with Globe V75 and Guard V97.

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
VE189	½	25	150	**$4.75**
VE289	¾	25	160	**4.85**
VE389	1	10	80	**4.95**

TYPE VHE

Complete with Globe V200 and Guard VH99.

VHE189	½	25	180	**5.50**
VHE289	¾	25	190	**5.60**
VHE389	1	10	95	**5.70**



TYPE VF

Complete with Globe V75 and Guard V97.

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
VF189	½	25	160	**$4.90**
VF289	¾	25	170	**5.00**
VF389	1	10	85	**5.10**

TYPE VHF

Complete with Globe V200 and Guard VH99.

VHF189	½	25	190	**5.75**
VHF289	¾	25	200	**5.85**
VHF389	1	10	100	**5.95**

TYPE VJ

Complete with Globe V75 and Guard V97.

Mfrs. No.	Size, In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
VJ1189	½	25	200	**$5.15**
VJ2289	¾	25	210	**5.25**
VJ3389	1	10	110	**5.35**

TYPE VHJ

Complete with Globe V200 and Guard VH99.

VHJ1189	½	25	230	**5.90**
VHJ2289	¾	25	240	**6.00**
VHJ3389	1	10	120	**6.10**

If specified on the order, lamp receptacle with lamp grip will be furnished at an advance in the list price.

Finishes and Assortments, see end of Condulet listing. Special Assortments: Any assortment of 100 black enameled and galvanized iron Condulets of the V and VH series, clamp guard, will be considered a standard package.

Condulets are regularly furnished with clear globes. If specified on the order, colored globes will be substituted at the difference in the list prices. Accessories and Parts, see opposite column. Wiring devices, page 432, Condulet catalog No. 2000.

GLOBES, GUARDS AND HOLDERS
For Condulets of the V and VH Series, Clamp Guard

GLOBES—Clear

For V Series, Clamp Guard

Mfrs. No.	Lgth. In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
V8	6	25	30	**$0.80**
For VH Series, Clamp Guard				
VH8	8¼	25	60	**.80**

GUARDS
Brass, Marine Finish

For V Series

Length of globe, 6 or 6¾ Inches

Mfrs. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
V97	25	35	**$1.80**

For VH Series

Length of globe, 8¼ or 9¼ Inches

VH99	25	45	**2.25**

GUARDS WITH REFLECTOR HOLDERS
Brass, Marine Finish

For V Series

Mfrs. No	Length Globe, In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
V 71	6	25	50	**$2.00**
V771	6¾	25	60	**2.00**
For VH Series				
VH 71	8¼	25	70	**2.50**
VH791	9¼	25	80	**2.50**

REFLECTOR HOLDERS
Brass, Marine Finish

For V Series

Mfrs. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
V61	25	20	**$1.40**
For VH Series			
VH61	25	30	**1.65**

For V Series

Mfrs. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
V62	25	25	**$1.40**
For VH Series			
VH62	25	35	**1.65**

Finishes and Assortments, see end of Condulet listing.

Reflectors, page 432, Condulet catalog No. 2000.

VAPORPROOF PORTABLE HAND LAMPS
TYPE VS, SCREW GUARD

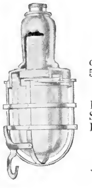
Aluminum—Scratch Brush

Takes 60-Watt Mazda B Lamps or any Lamp not exceeding 2¾ x 5⅝ inches.

Mfrs. No.	Lgth. of Globe, In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
VS060	5⅜	25	70	**$6.15**

Furnished with Receptacle, Gaskets, Globe, Guard, Cord Guard Spring, and Watertight Stuffing Box in Handle.

VAPORPROOF PORTABLE HAND LAMPS



TYPE VS, CLAMP GUARD

Aluminum—Scratch Brush

Takes 40-Watt Mazda B Lamps or any Lamp not exceeding 2¾ x 5¼ inches.

Furnished with Receptacle, Gaskets, Globe, Guard, Cord Guard Spring, and Watertight Stuffing Box in Handle.

Mfrs. No.	Lgth. of Globe, In.	Std. Pkg.	Wt Lbs. Std.Pkg.	Price Each
VS05	5	25	65	**$6.15**

If specified on the order, lamp receptacle with lamp grip will be furnished at an advance in the list price.

GUARDS

For VS Portable Hand Lamps

SCREW

Galvanized

Mfrs. No.	Lgth. In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
VS0955	5⅜	25	30	**$2.00**

CLAMP

Galvanized

Mfrs. No.	Lgth. In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
VS095	5	25	30	**$2.00**

GLOBES

Clear

For VS Portable Hand Lamps

Mfrs No	Lgth. In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
V85	5	25	30	**$0.80**
V15	5⅜	25	30	**.80**

AISLE LIGHT CONDULETS—LA SERIES

Take 10-Watt S-14 Mazda B Lamps or any Lamp not exceeding 1¾ inches x 4¼ inches. Furnished with Lamp Receptacle.

TYPE LA

Mfrs. No.	Size In.	Hght. In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
LA1	½	7$\frac{5}{16}$	25	140	**$2.75**
LA2	¾	7$\frac{5}{16}$	25	140	**2.85**
LA3	1	7$\frac{7}{16}$	25	140	**2.95**

AISLE LIGHT CONDULETS—LA SERIES

Take 10-Watt S-14 Mazda B Lamps or any Lamp not exceeding 1¾ inches x 4¼ inches. Furnished with Lamp Receptacle.

TYPE LAL

Mfrs. No.	Size In.	Hght. In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
LAL1	½	7$\frac{5}{16}$	25	140	**$2.75**
LAL2	¾	7$\frac{5}{16}$	25	140	**2.85**
LAL3	1	7$\frac{7}{16}$	25	140	**2.95**

TYPE LAR

Mfrs. No.	Size In.	Hght. In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
LAR1	½	7$\frac{5}{16}$	25	140	**$2.75**
LAR2	¾	7$\frac{5}{16}$	25	140	**2.85**
LAR3	1	7$\frac{7}{16}$	25	140	**2.95**

CONDULETS—P AND PM SERIES

Black Enamel Finish

Take Electroliers or Combination Gas and Electric Fixtures. Furnished with Screws for Fixture Stud.

TYPE P

For 4 to 6-Inch Canopies

Mfrs. No.	Size In.	Wt. Lbs. Std Pkg.	Price Each
P1	½	90	**$1.40**
P2	¾	95	**1.55**
P3	1	55	**1.70**
P4	1¼	65	**1.85**
P5	1½	80	**2.00**

TYPE PC

For 4 to 6-Inch Canopies

Mfrs. No.	Size In.	Wt.Lbs. Std.Pkg.	Price Each
PC1	½	100	**$1.50**
PC2	¾	110	**1.65**
PC3	1	60	**1.80**
PC4	1¼	70	**1.95**
PC5	1½	85	**2.10**

TYPE PM

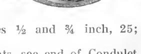
For 3 to 4-Inch Canopies

Mfrs. No.	Size In.	Wt Lbs Std. Pkg.	Price Each
PM1	½	60	**$0.90**
PM2	¾	65	**1.05**
PM3	1	45	**1.20**
PM4	1¼	50	**1.35**
PM5	1½	55	**1.50**

TYPE PMC

For 3 to 4-Inch Canopies

Mfrs. No	Size In.	Wt.Lbs. Std.Pkg.	Price Each
PMC1	½	80	**$1.05**
PMC2	¾	85	**1.20**
PMC3	1	45	**1.35**
PMC4	1¼	50	**1.50**
PMC5	1½	55	**1.65**



Standard package: Sizes ½ and ¾ inch, 25; sizes 1, 1¼ and 1½, 10.

Finishes and Assortments, see end of Condulet listing. Special Assortment: Any assortment of 100 black enameled and galvanized Condulets of the P or PM series will be considered a standard package.

CONDULETS—Y SERIES

Black Enamel Finish

Takes Main Line Fuse Cutouts. Furnished with Cutout Fastening Plate, Screws, and Bolts. Hubs Cast Solid with Body.

TYPE YC

With Sheet Steel Door

Mfrs. No.	Size In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
30 Amp., 250 Volt—2 Wire				
YC1302	½	15	95	$2.50
YC2302	¾	15	105	2.60
YC3302	1	10	75	2.70
30 Amp., 250 Volt—3 Wire				
YC2303	¾	15	140	3.10
YC3303	1	10	95	3.20
YC4303	1¼	10	100	3.30
60 Amp., 250 Volt—2 Wire				
YC2602	¾	15	155	3.80
YC3602	1	10	105	3.90
YC5602	1½	5	55	4.00
60 Amp., 250 Volt—3 Wire				
YC2603	¾	15	180	4.20
YC3603	1	10	120	4.30
YC4603	1¼	10	125	4.40

Finishes and Assortments, see end of Condulet listing. Special Assortment: Any assortment of 50 black enameled and galvanized Condulets of the Y series will be considered a standard package.

CONDULET BODIES—YY SERIES

Black Enamel Finish

WITHOUT HUB PLATES

For YY, YYC, and YYQ Condulets

Take Main Line Fuse Cutouts. Furnished with Cast Iron Door, Cutout Fastening Plate, and Screws and Bolts for Cutout Fastening Plate.

TYPE YY

Mfrs. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
30 Amp., 250 Volt—2 Wire — Takes YYP5 Hub Plates and BRY5 Receptacle Housings.			
YY55302	15	150	$3.50
30 Amp., 250 Volt—2 Wire or 3 Wire — Takes YYP7 Hub Plates and BRY7 Receptacle Housings.			
YY77303	15	195	4.30
60 Amp., 250 Volt—2 Wire — Takes YYP7 Hub Plates and BRY7 Receptacle Housings.			
YY77602	15	210	5.10
60 Amp., 250 Volt—3 Wire — Takes YYP8 Hub Plates			
YY88603	15	285	6.40
100 Amp., 250 Volt—2 Wire — Takes YYP8 Hub Plates			
YY881002	10	220	7.40
100 Amp., 250 Volt—3 Wire — Takes YYP8 Hub Plates			
YY881003	10	290	9.40
30 or 60 Amp., 600 Volt— 1 Wire — Takes YYP7 Hub Plates			
YY776016	15	240	5.50
30 or 60 Amp., 600 Volt—3 Wire — Takes YYP8 Hub Plates			
YY886036	15	420	8.40

If specified on the order, a cabinet lock and key in addition to the spring catch will be furnished at an advance of $1.75 in the list price.

Finishes and Assortments, see end of Condulet listing. Special Assortment: Any assortment of 50 black enameled and galvanized Condulet bodies of the YY series will be considered a standard package.

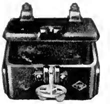
Hub plates, see end of ZP series. Plug Receptacle Housings, see end of ZP series. Wiring devices, pages 436 to 438, Condulet catalog No. 2000.

CONDULET BODIES—YW SERIES

Black Enamel Finish

WITHOUT HUB PLATES

For Watertight Condulets



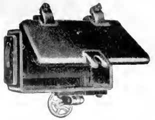
TYPE YW

For YW, YWC, and YWQ Condulets. Takes Main Line Fuse Cutouts. Furnished with Cast Iron Door, Gaskets, Cutout Fastening Plate, and Screws and Bolts for Cutout Fastening Plate.

Mfrs. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
30 Amp., 250 Volt—2 Wire — Takes YYP5 Hub Plates and BRY5 Receptacle Housings.			
YW55302	15	165	$4.50
30 Amp., 250 Volt—2 Wire or 3 Wire — Takes YYP7 Hub Plates and BRY7 Receptacle Housings.			
YW77303	15	210	5.45
60 Amp., 250 Volt—2 Wire — Takes YYP7 Hub Plates and BRY7 Receptacle Housings.			
YW77602	15	220	6.20
60 Amp., 250 Volt—3 Wire — Takes YYP8 Hub Plates.			
YW88603	15	295	7.50
100 Amp., 250 Volt—2 Wire — Takes YYP8 Hub Plates.			
YW881002	10	230	9.40
100 Amp., 25 Volt—3 Wire — Takes YYP8 Hub Plates.			
YW881003	10	300	11.30
30 or 60 Amp., 600 Volt—1 Wire — Takes YYP7 Hub Plates.			
YW776016	15	250	7.40
30 or 60 Amp., 600 Volt—3 Wire — Takes YYP8 Hub Plates.			
YW886036	15	430	10.40

TYPE YWS

For YWL, YWR, and YWS Condulets. Take Main Line or Single Branch Fuse Cutouts. Furnished with Cast Iron Door, Gaskets, Cutout Fastening Plate, and Screws and Bolts for Cutout Fastening Plate.



Mfrs. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
30 Amp., 250 Volt—2 Wire — Takes YYP5 Hub Plates and BRY5 Receptacle Housings.			
YWS55302	15	200	$5.50
30 Amp., 250 Volt—2 Wire or 3 Wire — Takes YYP7 Hub Plates and BRY7 Receptacle Housings.			
YWS77303	15	245	6.40
60 Amp., 250 Volt—2 Wire — Takes YYP7 Hub Plates and BRY7 Receptacle Housings.			
YWS77602	15	245	7.95
60 Amp., 250 Volt—3 Wire — Takes YYP8 Hub Plates.			
YWS88603	15	305	9.00
30 or 60 Amp., 600 Volt—3 Wire — Takes YYP8 Hub Plates.			
YWS886036	15	450	11.10

See following page for footnotes.

CONDUIT HUB PLATES

Cast Iron—Black Enamel Finish

For Condulet Bodies of the YY, YW and ZP Series
Furnished with Screws

ONE HUB STRAIGHT

YYP5 Series—Dimensions, 2¾ x 3⅝ Inches

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
YYP51	½	15	20	$0.40
YYP52	¾	15	20	.50
YYP53	1	15	25	.60
YYP54	1¼	15	25	.70
YYP55	1½	15	30	.80
YYP7 Series—Dimensions, 2¾ x 4½ Inches				
YYP71	½	15	20	.45
YYP72	¾	15	20	.55
YYP73	1	15	25	.65
YYP74	1¼	15	25	.75
YYP75	1½	15	30	.85
YYP76	2	15	30	.95
YYP8 Series—Dimensions, 3¼ x 4⅝ Inches				
YYP81	½	15	25	.55
YYP82	¾	15	25	.65
YYP83	1	15	30	.75
YYP84	1¼	15	30	.85
YYP85	1½	15	35	.95
YYP86	2	15	40	1.05
YYP87	2½	15	45	1.15

TWO HUBS STRAIGHT

YYP7 Series—Dimensions, 2¾ x 4½ Inches

Mfrs. No.	Size Ir.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
YYP711	½	15	25	$0.60
YYP722	¾	15	25	.70
YYP733	1	15	30	.80
YYP744	1¼	15	30	.90
YYP8 Series—Dimensions, 3¼ x 4⅝ Inches				
YYP811	½	15	30	.70
YYP822	¾	15	30	.80
YYP833	1	15	35	.90
YYP844	1¼	15	35	1.00

ONE HUB 90° BACK OR FRONT

YYP5 Series—Dimensions, 2¾ x 3⅝ Inches

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
YYAP51	½	15	20	$0.50
YYAP52	¾	15	20	.60
YYP7 Series—Dimensions, 2¾ x 4½ Inches				
YYAP71	½	15	25	.55
YYAP72	¾	15	25	.65
YYAP73	1	15	30	.75
YYAP74	1¼	15	30	.85
YYAP75	1½	15	35	.95
YYP8 Series—Dimensions, 3¼ x 4⅝ Inches				
YYAP81	¾	15	30	.65
YYAP82	¾	15	30	.75
YYAP83	1	15	35	.85
YYAP84	1¼	15	35	.95
YYAP85	1½	15	40	1.05
YYAP86	2	15	45	1.15

Finishes and Assortments, see end of Condulet listing. Special Assortment: Any assortment of 50 black enameled and galvanized conduit hub plates will be considered a standard package.

CONDUIT HUB PLATES

Cast Iron—Black Enamel Finish

For Condulet Bodies of the YY, YW and ZP Series
Furnished with Screws

ONE HUB 90° LEFT OR RIGHT

YYP7 Series—Dimensions: 2¾x4½ Inches

Mfrs. No.	Size, In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
YYLP71	½	15	25	$0.55
YYLP72	¾	15	25	.65
YYLP73	1	15	30	.75
YYLP74	1¼	15	30	.85
YYLP75	1½	15	35	.95
YYP8 Series—Dimensions: 3¼ x 4⅝ Inches				
YYLP81	½	15	30	.65
YYLP82	¾	15	30	.75
YYLP83	1	15	35	.85
YYLP84	1¼	15	35	.95
YYLP85	1½	15	40	1.05
YYLP86	2	15	45	1.15

BLANK

YYP5 Series—Dimensions 2¾x3⅝ Inches

Mfrs. No.	Std. Pkg.	Wt.Lbs. Std Pkg.	Price Each
YYP500	15	15	$0.25
YYP7 Series—Dimensions 2¾x4½ Inches			
YYP700	15	20	.30
YYP8 Series—Dimensions 3¼x4⅝ Inches			
YYP800	15	25	.40

Finishes and Assortments, see end of Condulet listing. Special Assortment: Any assortment of 50 black enamelcd and galvanized conduit hub plates will be considered a standard package.

PLUG RECEPTACLE HOUSINGS TYPE BRY

Black Enamel Finish

***30 Amp., 250 Volt A. C.**

For Condulet Bodies of the YW, YY and ZP Series and ZF 55302. 2-pole Housings are furnished with 30-ampere, 250-volt Receptacle BR302, which takes 2-pole Plugs. 3-pole Housings are furnished with 30-ampere, 250-volt Receptacle BR303, which takes 3-pole Plugs.

PLAIN HOUSINGS

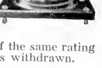
Furnished with Receptacle and Screws

Mfrs. No	Size	Wt.Lbs. Std.Pkg.	Price Each
2 Pole			
BRY5302	BRY5	40	$3.50
BRY7302	BRY7	50	3.60
3 Pole			
BRY7303	BRY7	55	4.50

THREADED HOUSINGS

Furnished with Receptacle, Gasket and Screws

Mfrs. No	Size	Wt.Lbs. Std.Pkg.	Price Each
2 Pole			
BRY57302	BRY5	40	$3.70
BRY77302	BRY7	50	3.80
3 Pole			
BRY77303	BRY7	55	4.75



Standard package, 15.

*Can be used on D.C. circuits of the same rating if circuit is broken before plug is withdrawn.

Plugs, see end of GS series.

CONDULET REDUCERS AND UNIONS

CONDULET REDUCERS

Mfrs. No.	Size In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
RE1308	½, ⅜	50	5	$0.15
RE21	¾, ½	50	5	.15
RE31	1, ½	50	10	.20
RE41	1¼, ½	50	20	.30
RE51	1½, ½	50	25	.40
RE61	2, ½	25	20	.50
RE71	2½, ½	25	20	1.00
RE81	3, ½	25	30	1.35
RE91	3½, ½	10	20	2.00
RE101	4, ½	10	30	2.75
RE32	1, ¾	50	10	.20
RE42	1¼, ¾	50	20	.30
RE52	1½, ¾	50	25	.40
RE62	2, ¾	25	20	.50
RE72	2½, ¾	25	20	1.00
RE82	3, ¾	25	30	1.35
RE92	3½, ¾	10	20	2.00
RE102	4, ¾	10	30	2.75
RE43	1¼, 1	50	15	.30
RE53	1½, 1	50	20	.40
RE63	2, 1	25	20	.50
RE73	2½, 1	25	30	1.00
RE83	3, 1	25	30	1.35
RE93	3½, 1	10	20	2.00
RE103	4, 1	10	25	2.75
RE54	1½, 1¼	50	15	.40
RE64	2, 1¼	25	15	.50
RE74	2½, 1¼	25	30	1.00
RE84	3, 1¼	25	40	1.35
RE94	3½, 1¼	10	25	2.00
RE104	4, 1¼	10	25	2.75
RE65	2, 1½	25	10	.50
RE75	2½, 1½	25	25	1.00
RE85	3, 1½	25	40	1.35
RE95	3½, 1½	10	25	2.00
RE105	4, 1½	10	30	2.75
RE76	2½, 2	25	15	1.00
RE86	3, 2	25	35	1.35
RE96	3½, 2	10	30	2.00
RE106	4, 2	10	35	2.75
RE87	3, 2½	25	25	1.35
RE97	3½, 2½	10	20	2.00
RE107	4, 2½	10	35	2.75
RE98	3½, 3	10	20	2.00
RE108	4, 3	10	25	2.75
RE109	4, 3½	10	20	2.75

CONDULET UNIONS

Mfrs. No.	Size In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
UN1	½	50	40	$0.45
UN2	¾	50	50	.50
UN3	1	25	40	.75
UN4	1¼	25	50	1.20
UN5	1½	25	60	1.80
UN6	2	10	40	2.75
UN7	2½	10	50	4.75
UN8	3	5	35	8.00

Special Assortments: Any assortment of 100 unions will be considered a standard package. Any assortment of 200 reducers will be considered a standard package.

CONDULET FIXTURE JOINT

For Pendent Fixtures

TYPE UNJ

Mfrs. No.	Size In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
UNJ1308	½, ⅜ *	50	40	$0.65
UNJ1	½, ½	50	40	.65
UNJ2308	¾, ⅜ *	50	55	.75
UNJ21	¾, ½ *	50	55	.75
UNJ2	¾, ¾	50	60	.75
UNJ3308	1, ⅜ *	25	40	.90
UNJ31	1, ½ *	25	40	.90
UNJ32	1, ¾ *	25	40	1.00
UNJ3	1,1	25	40	1.00

*Male threads given first.

CONDULET FINISHES

IRON CONDULETS AND COVERS

Black Enamel: Black enamel is the standard finish for Condulets, Condulet bodies, and metal covers and will be furnished unless another finish is specified on the order.

Galvanized: Galvanized finish on the exterior and black enamel finish on the interior of Condulets and Condulet bodies will be furnished at the same price as all black enamel finish, when the order specifies galvanized finish. Galvanized finish for metal covers will be furnished, if specifically ordered, at the same price as black enamel finish.

ASSORTMENTS

Black enameled and galvanized Condulets and Condulet bodies of the same type and size may be assorted to make a standard package.

Black enameled and galvanized covers of the same type and size may be assorted to make a standard package.

Black enameled and galvanized Condulet accessories of the same type and size may be assorted to make a standard package.

EXPLANATION

Condulets listed herein are the types ordinarily used and which we believe will fill most of the requirements of our trade.

A very extensive line adapted for all commercial purposes can be furnished and are listed in Crouse-Hinds catalog which will be sent upon request.

We do not stock all types listed, but will be pleased to procure non-stock items from factory as quickly as possible.

Such items when ordered are with the understanding they are not subject to cancellation or return.

TYPE FML MINE CONDULETS

Black Enamel Finish

Built especially heavy to withstand the hard usage and abuse incident to mining service. The door and all openings are thoroughly gasketed to prevent the entrance of moisture. The door is fastened with eyebolts and wing nuts, and the hinges are adjustable, so that the pressure on the gasket can be regulated both on the fastening and on the hinge side of the door.

The panel board has two 60-ampere and two 30-ampere 2-wire circuits, each circuit arranged for fuses only, of the N. E. C. cartridge type. Fuse and busbar spacings are for either 125 or 250 volts. The main busbars are 3 wire, with soldering lugs at each end to provide for through feed mains.

Four openings on each side of the Condulet for passage of main and branch circuit cables are equipped with cable gland plates or blank plates as required, thoroughly gasketed, and the former provided with rubber gland bushings which seal the openings around the cables and make the entrance watertight.

The upper and lower openings on each side are intended for the mains, which can enter or leave from either side, the lugs on the panel busbars being arranged to face either way. The openings not used are covered with blank plates.

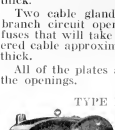
Two cable gland plates are provided for the mains, that will take a 3 conductor No. 0 round lead covered cable approximately 1⅛ inches in outside diameter.

Two cable gland plates are provided for the branch circuit openings opposite the 60 ampere fuses that will take a No. 4 flat duplex lead covered cable approximately ⅞ inch wide by ½ inch thick.

Two cable gland plates are provided for the branch circuit openings opposite the 30 ampere fuses that will take a No. 12 flat duplex lead covered cable approximately ⅞ inch wide by ⅜ inch thick.

All of the plates are interchangeable on any of the openings.

TYPE FML CONDULET



Furnished with panel, 6 cable gland plates, 2 blank plates, gaskets and screws.

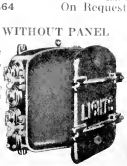
Complete With Panel
3 to 2 Wire
250 Volt—4 Circuit

Mfrs. No.	Price Each
FML64	On Request

TYPE FML CONDULET WITHOUT PANEL

Furnished with 6 cable gland plates, 2 blank plates, gaskets and screws.

Mfrs. No.	Price Each
FML6	On Request



Panel Only
3 to 2 Wire
250 Volt—4 Circuit
FML4 On Request

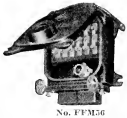
TYPE FFM MINE CONDULETS

Black Enamel Finish

FOR MINE SIGNALING SYSTEMS

The importance of the signal system in a mine can hardly be overestimated, for upon it largely depends the output and often the lives of the miners. The conditions are so severe, and reliability so essential that only the very best construction should be considered.

A type FFM Condulet is a distributing center for mine signal circuits. It is of very substantial watertight construction and is provided with a receptacle so that a lamp can be used to heat the interior, thus preventing the collection of moisture within the Condulet due to condensation.



No. FFM56

Openings are provided for lead covered conductors. The conductors are held in place by wooden wedges and the opening made watertight by use of suitable compound.

With Connection Block and Lamp Receptacle

Mfrs. No.	Std. Pkg.	Pkg. Wt.	Price Each	Mfrs. No.	Std. Pkg.	Pkg. Wt.	Price Each
	3 Wire				6 Wire		
FFM53	5	160	*	**FFM56**	5	190	*

Connection Block for Above

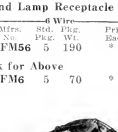
FFM3	5	55	*	**FFM6**	5	70	*

Furnished with connection block. Takes Benjamin marine buzzer No. 8299A and Ward-Leonard resistance. Connection block equipped with fuse terminals and resistance clips

With Connection Block

Mfrs. No.	Std. Pkg.	Pkg. Wt.	Price Each
FFM41	5	175	*
Connection Block—3 Wire			
FFM1	5	60	*

*Prices of above Conduletes on request.



No. FFM41

TYPE AF MINE SIGNAL SWITCH

Type AF is a single pole, double make, quick break, mine signal, pull switch. The normal position is open; therefore operating the switch closes the circuit. All insulating parts are of high grade material. The spring is packed in grease and will support a weight of 15 pounds without operating the switch. The switch is enclosed in a rugged watershedding housing and is fastened to it by four cap screws. The wires enter through clearance holes in the flange on the switch mechanism.

1 Pole—2 Ampere—250 Volt

Mfrs No.	Std. Pkg.	Wt Lb. Std. Pkg.	Price Each
AF1	10	130	**$10.00**

P & S INTERCHANGEABLE PARTS

Interchangeable Parts are easy to understand. There are three styles of parts:

BODIES—BASES—CAPS

Each style of parts is packed in separate cartons. The parts quickly fit the corresponding member of the device when assembled. They are economical to stock and practical to use.

FLUTO ASSEMBLED DEVICES

The popular numbers for special requirements demanding assembled devices, are shown below.

Mfrs. No.	Parts No	Std. Pkg.	Carton	Wt Lb. Std.Pkg	Price Per 100
90	CA-S22	250	25	65	**$55.00**
59482	CA-S21	500	25	125	**30.00**
100421	CA-S19	500	25	130	**33.00**
***100421**	Brown Key	500	25	130	**33.00**
100425	CL-S19	500	25	125	**33.00**

*Brown key is part of the Mfrs. No., remember this when ordering.

Because of the demand for interchangeable parts in preference to assembled devices and the desire to give prompt service, the ordering of parts whenever possible is suggested.

Parts can be shipped promptly, but assembled devices are subject to delay.

P & S FLUTO INTERCHANGEABLE PARTS

FLUTO BODIES—N. E. C. Standard

Key Bodies

Mfrs No.	Watts	Sched-ule	Std. Pkg.	Wt Lb. Std.Pkg.	Price Per 100
S-19	250	B	500	105	**$26.00**
S-20	660	B	500	110	**29.00**

Keyless

S-21	660	B	500	88	**23.00**

Shurlok—Key Bodies

Mfrs. No.	Watts	Sched-ule	Std. Pkg.	Wt Lb. Std.Pkg.	Price Per 100
S-29	250	L	100	19	**$53.00**
S-30	660	L	100	19	**56.00**

Keyless

S-31	660	L	100	17	**50.00**

Pull Bodies

Mfrs. No.	Watts	Sched-ule	Std. Pkg.	Wt Lb. Std.Pkg.	Price Per 100
S-22	250	B	250	52	**$48.00**
S-65	660	B	250	52	**59.00**

Shurlok—Pull Bodies

S-32	250	L	100	19	**80.00**
S-75	660	L	100	19	**86.00**

All above bodies, 25 in a carton.

P & S FLUTO INTERCHANGEABLE PARTS

N. E. C. Standard

FLUTO SWITCH BODIES—Schedule XA

Wall Type

Mfrs. No.	Carton	Std. Pkg.	Wt Lb. Std.Pkg.	Price Per 100
S-17	10	50	10	**$53.00**

Ceiling Type

S-23	10	100	25	**53.00**

Rosette Type

Mfrs No.	Carton	Std. Pkg.	Wt Lb. Std.Pkg.	Price Per 100
S-24	10	100	25	**$53.00**

Fixture Type

Mfrs. No.	Carton	Std. Pkg.	Wt Lb. Std.Pkg.	Price Per 100
S-37	10	50	15	**$68.00**

FLUTO CAPS—Schedule B

Straight Nipple

Mfrs. No.	Size in.	Carton	Std. Pkg.	Wt Lb. Std.Pkg.	Price Per 100
CA	1/8	25	500	25	**$7.00**
CB	1/4	25	100	7	**16.00**
CC	3/8	25	250	15	**13.00**
CN	1/2	25	50	5	**19.00**

Side Outlet Cap

Mfrs. No.	Size in.	Carton	Std. Pkg.	Wt Lb. Std.Pkg.	Price Per 100
CX	1/8	25	500	25	**$9.00**

Pendent Bushings

Composition

Mfrs. No.	Carton	Std. Pkg.	Wt Lb. Std.Pkg.	Price Per 100
CL	25	500	20	**$7.00**

Porcelain

CM	25	500	30	**7.00**

90° Angle

Mfrs. No.	Size in.	Carton	Std. Pkg.	Wt Lb. Std.Pkg.	Price Per 100
CG	1/8	25	100	8	**$21.00**
CH	1/4	25	50	4	**25.00**
CI	3/8	25	50	5	**24.00**

Male Thread

Mfrs. No.	Size in.	Carton	Std. Pkg.	Wt Lb. Std.Pkg.	Price Per 100
CO	1/8	25	100	7	**$10.00**
CD	3/8	25	100	7	**16.00**

Angle Fixture Caps

Mfrs. No.	Size in.	Carton	Std. Pkg.	Wt Lb. Std.Pkg.	Price Per 100
CJ	1/8	25	50	5	**$27.00**
CK	1/4	25	50	6	**28.00**

P & S FLUTO INTERCHANGEABLE PARTS

FLUTO BASES—N. E. C. Standard

Schedule B

Cleat

Mfrs. No.	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Per 100
BA	250	79	**$23.00**
Slotted			
BB	250	50	**18.00**

10 in a carton.

Concealed

Mfrs. No.	Car-ton	Std. Pkg.	Wt.Lb Std.Pkg.	Price Per 100
BC	10	250	50	**$18.00**
BD	10	100	30	**23.00**

Angle Wall Base

Mfrs. No.	Car-ton	Std. Pkg.	Wt.Lb. Std Pkg.	Price Per 100
BE	10	100	32	**$23.00**

Molding

Mfrs. No.	Std. Pkg.	Wt Lb. Std.Pkg.	Price Per 100
BF	100	25	**$18.00**
Condulet			
BG	100	25	**23.00**

10 in a carton.

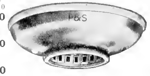
Covered

Mfrs. No.	Car-ton	Std. Pkg	Wt.Lb. Std.Pkg.	Price Per 100
BJ	10	250	68	**$28.00**
BK	1	100	44	**37.00**

3¼ Inch Box

Mfrs. No.	Std. Pkg.	Wt Lb. Std Pkg.	Price Per 100
BL	100	65	**$37.00**
Covered			
BM	100	84	**67.00**
4 Inch Box			
BN	100	116	**67.00**

1 in a carton.



Attachment Plug Base

Mfrs. No.	Car-ton	Std. Pkg	Wt.Lb Std.Pkg.	Price Per 100
BO	10	50	7	**$27.00**

All Metal

Mfrs. No	Wt.Lb. Std.Pkg.	Price Per 100
BR	66	**$67.00**

1 in a carton.
Std. Pkg., 100.

P & S FLUTOLIER INTERCHANGEABLE PARTS

N. E. C. Standard

FLUTOLIER BODIES—Schedule B

KEY—250 Watt

Mfrs. No.	Car-ton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Per 100
S-33	25	500	95	**$26.00**

PUSH—660 Watt

Mfrs. No.	Car-ton	Std. Pkg	Wt Lb Std.Pkg.	Price Per 100
S-34	25	500	85	**$26.00**

With Removable Buttons

No. S-34 special style with removable buttons, add **$0.07** per hundred to price of No. S-34 listed above.

PULL—250 Watt

Mfrs. No	Car-ton	Std. Pkg.	Wt Lb. Std.Pkg.	Price Per 100
S-36	25	250	45	**$48.00**

KEYLESS—660 Watt

Mfrs. No.	Carton	Std.Pkg.	Wt.Lb. Std.Pkg.	Price Per 100
S-35	25	500	60	**$23.00**

FLUTOLIER CAPS—Schedule B

STRAIGHT NIPPLE

Mfrs. No.	Size In.	Car-ton	Std. Pkg.	Wt.Lb. Std Pkg.	Price Per 100
FA	⅛	25	500	27	**$7.00**
FB	¼	25	100	14	**16.00**
FC	⅜	25	250	14	**13.00**

SIDE OUTLET CAP

Mfrs. No.	Size In.	Car-ton	Std Pkg.	Wt.Lb. Std.Pkg.	Price Per 100
FX	⅛	25	250	25	**$9.00**

PENDENT BUSHING—Composition

Mfrs. No.	Carton	Std.Pkg.	Wt.Lb. Std.Pkg.	Price Per 100
FK	25	500	25	**$7.00**

90° ANGLE

Mfrs. No.	Size In.	Car-ton	Std. Pkg.	Wt.Lb. Std Pkg.	Price Per 100
FF	⅛	25	100	14	**$21.00**
FH	⅜	25	50	10	**24.00**

P & S PORCELAIN INTERCHANGEABLE PARTS

PORCELAIN BODIES—N. E. C. Standard

Key

Mfrs. No.	Watts	Schedule	Std Pkg.	Pkg. Wt.	Price Per 100
S-26	250	B	250	66	**$26.00**

Shurlok—Key

Mfrs. No.	Watts	Schedule	Std. Pkg.	Pkg. Wt.	Price Per 100
S-38	250	L	100	25	**$53.00**

Keyless

Mfrs. No.	Watts	Schedule	Std. Pkg.	Pkg. Wt	Price Per 100
S-27	660	B	250	50	**$23.00**
Shurlok—Keyless					
S-39	660	L	100	20	**50.00**

Pull

Mfrs. No.	Watts	Schedule	Std Pkg.	Pkg. Wt.	Price Per 100
S-47	250	B	100	37	**$75.00**
Shurlok—Pull					
S-57	250	L	100	40	**102.00**

Push

Mfrs. No.	Watts	Schedule	Std. Pkg.	Pkg. Wt.	Price Per 100
S-48	660	B	100	38	**$29.00**

Pull

Mfrs. No.	Watts	Schedule	Std. Pkg.	Pkg. Wt.	Price Per 100
S-66	660	B	100	38	**$81.00**
Shurlok—Pull					
S-76	660	L	100	40	**108.00**

All above bodies, 10 in a carton.

PORCELAIN CAPS—Schedule B

Pendent

Mfrs. No.	Carton	Std. Pkg.	Wt Lb Std Pkg.	Price Per 100
PA	10	250	30	**$10.00**
PB	10	250	30	**10.00**

Straight Nipple

Mfrs. No.	Size In.	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Per 100
PC	⅛	10	100	15	**$20.00**
PD	¼	10	100	15	**30.00**

Straight Nipple

Mfrs. No.	Size In.	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Per 100
PE	⅜	10	100	16	**$24.00**

P & S PORCELAIN INTERCHANGEABLE PARTS

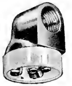
PORCELAIN CAPS—Schedule B

Straight Nipple—Aluminum

Mfrs. No	Size In.	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Per 100
PF	⅜	10	100	16	**$40.00**
PG	½	10	100	14	**42.00**

90° Angle

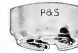
Mfrs. No.	Size In.	Carton	Std. Pkg.	Wt.Lb. Std Pkg.	Price Per 100
PO	⅜	10	100	28	**$50.00**
Aluminum					
PQ	⅜	10	100	28	**65.00**
PR	½	10	100	25	**75.00**



90° Angle

Mfrs. No.	Size In.	Carton	Std. Pkg.	Wt.Lb Std Pkg	Price Per 100
PU	½	10	100	36	**$60.00**
Locknut					
PW	....	10	50	25	**40.00**

PORCELAIN BASES—Schedule B

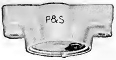


Concealed

Mfrs. No.	Std Pkg.	Wt.Lb. Std.Pkg.	Price Per100
PH	100	15	**$12.00**

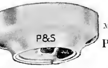
Cleat

Mfrs No.	Std. Pkg.	Pkg. Wt.	Price Per 100
PI	100	28	**$14.00**



Moulding

Mfrs. No.	Std. Pkg.	Wt.Lb. Std.Pkg	Price Per 100
PK	100	35	**$20.00**



Concealed

Mfrs. No.	Std. Pkg.	Wt.Lb. Std Pkg.	Price Per 100
PL	100	30	**$15.00**

Condulet

Mfrs. No.	Std. Pkg.	Pkg. Wt	Price Per 100
PV	100	32	**$23.00**

All of the above bases, 10 in a carton.

3¼ Inch Box

Mfrs. No.	Pkg Wt.	Price Per 100
PM	68	**$30.00**
4 Inch Box		
PN	95	**40.00**

One in a carton; standard package, 100.

P & S MOGUL SOCKETS

BRASS SHELL—KEYLESS

1500 Watt, 600 Volt—Schedule B

Stamped wrought brass shells, lined with "H. T. Elastoid" fibre. This fibre is approved for use with gas filled lamps of above 100 Watt rating, either with or without shades or other enclosures. Brushed brass is the standard finish and will be furnished unless otherwise specified.

No. 216

Without Shadeholder

Diameter, 2 Inches. Height, 3¾ Inches.

Mfrs. No.	Size Cap, In.	Wt.Lbs. Std Pkg.	Price Each
216	⅜	34	$1.50
433	½	35	1.50

Carton, 10. Std. Pkg., 50.

With 3¾ In. Shadeholder

Diameter, 2 In. Height, 4 In.

Mfrs No.	Size Cap, In.	Wt.Lbs. Std.Pkg.	Price Each
429	⅜	48	$1.80
441	½	50	1.80

Carton, 1. Std. Pkg., 50.

No. 429

Note:—The cap of mogul brass sockets is threaded onto the shell and is provided with a set screw which prevents the shell from backing out of place.

PORCELAIN—KEYLESS

1500 Watt, 600 Volt—Schedule B

Made of high grade glazed white porcelain. Brushed brass is the standard finish for brass caps. P & S lamp grips can be supplied at an advance of **$0.05** each list.

No. 1186

WITH BRASS CAP

Two-Piece Body
Front Connected

Diameter, 2⅜ Inches. Height, $4\frac{3}{32}$ Inches.

Mfrs. No	Size Cap, In.	Wt.Lbs. Std.Pkg.	Price Each
1186	⅜	50	$1.00
1187	½	50	1.00
1188	¾	50	1.00
*1194	½	50	1.10

Carton, 2. Std. Pkg., 50.

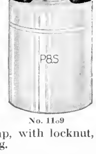
WITH IRON YOKE

Two-Piece Body
Front Connected

Diameter, 2⅜ Inches. Height, 4¼ Inches.

Mfrs. No	Size Cap, In.	Wt Lbs. Std.Pkg.	Price Each
1189	⅜	55	$0.85
1191	½	55	.85
1192	¾	55	.85

Carton, 2. Std. Pkg., 50.



No. 1189

*Has ¾ inch male threaded cap, with locknut, for holding shade or fixture fitting.

P & S MOGUL SOCKETS

PORCELAIN—KEYLESS

1500 Watts, 600 Volt—Schedule B

No. 521

WITH BRASS CAP

One-Piece Body

Diameter, 2⅜ Inches. Height, 3⅜ Inches.

Mfrs. No.	Size Cap, In.	Wt.Lbs. Std.Pkg.	Price Each
522	⅜	60	$0.85
521	½	60	.85
592	¾	60	.85
*538	½	60	.95

Carton, 10. Std. Pkg., 50.

WITH IRON YOKE—One Piece Body

Diameter, 2⅜ Inches Height, $3\frac{17}{32}$ Inches

Mfrs. No.	Size Cap, Inches	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
593	⅜	10	50	65	$0.70
594	½	10	50	65	.70
595	¾	10	50	65	.70

BODIES ONLY

No. S-54

Mfrs. No	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
Two-Piece Body Diam., 2⅜ In. Height, 3¼ In.				
S-53	2	50	40	$0.70
One-Piece Body Diam., 2⅜ In. Height, $2\frac{17}{32}$ In.				
S-54	10	50	50	.55
With 15 Inch No. 14 Wires				
S-56	10	50	50	.70

Holes for supporting screws are on 1½ inch centers.

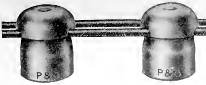
*Has ¾ inch male threaded cap, with locknut, for holding shade or fixture fitting.

P & S READY WIRED SOCKETS

FOR DECORATIVE LIGHTING

Schedule B—660 Watts, 250 Volts

MICA COMPOSITION



Ready wired decorative sockets are wired up with new code, stranded, single braid, rubber covered wire.

Extra wire on the ends of streamer will be charged for at **$0.04½** per foot list, each conductor, for No. 14 and **$0.05** per foot list, each conductor, for No. 12.

The list price for sockets spaced more than 30 inches apart can be determined by adding **$0.75** per hundred sockets, per inch, to the 30-inch list of No. 14 wire, and **$0.85** per hundred sockets, per inch, to the 30-inch list on No. 12 wire.

Mfrs.No. 14 Gage Wires	Mfrs.No. 12 Gage Wires	Socket Centers Inches	Approx. No. Sockets in 500 Ft. Length	Approx. Wt. Lbs.	Per 100 Sockets With No. 14 Wire	Per 100 Sockets With No. 12 Wire
220	255	4	1500	450	$31.00	$33.60
222	257	6	1000	300	32.50	35.50
229	263	12	500	150	37.00	40.20
236	269	18	333	100	41.50	45.15
248	275	24	250	75	46.00	50.10
254	281	30	200	60	50.50	55.10

Standard Package, 250 of One Number

P & S SHURLOK SOCKETS

National Electrical Code Standard

P & S Shurlok is an inbuilt feature of P & S Sockets and Receptacles, whereby the theft of the lamp is prevented.

In the P & S pages we have indicated the devices sold with the Shurlok feature, together with price, schedule and standard package.

Cross Section of Shurlok, Showing Lamp Locked in Place. Note the Screw, Deeply Recessed in the Condensite Bushing.

The illustrations show how the theft of the lamp is prevented. A small set screw with a triangular head and pointed end is introduced into the base of the lamp by means of a special key. When this set screw is placed in position, it is impossible to remove it without the use of this special key. The head of the set screw is recessed a considerable distance down into the condensite bushing, so it cannot be reached with tools. The key required is of peculiar shape, and keys of various descriptions already on the market will not fit. The Shurlok is not an experiment, but is a proved success of which hundreds of thousands are in daily use.

The Shurlok Socket finds a wide range of use in hotels, apartments, factories, colleges, public institutions, office buildings, mines, packing houses, railroads, steamboats, etc.

In addition to the prevention of theft, it also accomplishes many other purposes, for example:

Socket No. 100421 With Shurlok Attachment

Prevents guests in hotels from installing high wattage lamps, heating appliances, etc., which tend to overload the circuits and eause trouble. Prevents the guests using electric flatirons without permission of the proprietor.

Insures that lamps over fire exits and dark stairways will not be removed.

A eareful account of one of the County Buildings in the State of Illinois showed that three thousand 60-watt Tungsten lamps were stolen in four years.

Damage suits on account of falls down dark stairways will be reduced if the lamps are locked in place.

The lamps in moving vehicles of all kinds are subject to heavy vibration, which sometimes results in the lamps working loose.

Any of the brass shell Shurlok sockets can be used with a Uno shade holder.

The keys for the Shurlok are not given away, but are sold **$0.35** each net, regardless of quantity. Strict watch is kept to see that no keys get into the hands of unauthorized parties.

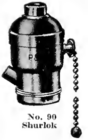
P & S SHURLOK KEYS

The special design of the key is such that its use is necessary for removal of lamps in Shurlok devices.

Mfrs. No.		Price Each
1299	In any quantity	**$0.35**

P & S SHURLOK SOCKETS

FLUTO INTERCHANGEABLE—250 Volts



No. 90 Shurlok

Mfrs. No.	Style	Wt.Lbs. Std.Pkg.	Price Each
	With ⅛ Inch Cap		
100421	Key, D.P.	30	**$0.60**
600	Key, 600 Watt	30	**.63**
59482	Keyless	29	**.57**
90	Pull	30	**.87**
	With ¼ Inch Cap		
60	Key, D. P.	30	**.69**
606	Key, 660 Watt	30	**.72**
7510	Keyless	29	**.66**
120	Pull	30	**.96**

One in a Carton; 100 in a Standard Package.

With ⅜ Inch Cap

Mfrs. No.	Style	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
100423	Key, D. P.	25	100	30	**$0.66**
612	Key, 600 Watt	25	100	30	**.69**
59483	Keyless	25	100	29	**.63**
91	Pull	25	100	30	**.93**
	Pendent or Strain Relief Cap				
100425	Key, D. P.	25	100	30	**.60**
614	Key, 660 Watt	25	100	30	**.63**
59487	Keyless	25	100	29	**.57**
92	Pull	25	100	30	**.87**

P & S SHURLOK RECEPTACLES

FLUTO INTERCHANGEABLE—250 VOLTS

For 3¼ Inch Outlet Boxes

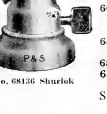
Mfrs. No	Style	Wt.Lbs. Std.Pkg.	Price Each
62350	Key	100	**$0.90**
620	Key 660 W.	100	**.93**
62351	Keyless	96	**.87**
97	Pull	50	**1.17**
7	Key	102	**.90**
621	Key, 660 W.	102	**.93**
1	Keyless	98	**.87**
128	Pull	55	**1.17**

One in a Carton; 100 in a Standard Package. Nos. 97 and 128, 50 in a Standard Package.

No. 60430 Shurlok

For 3¼ and 4 Inch Outlet Boxes

Mfrs. No.	Style	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
42	Key	1	100	180	**$1.20**
623	Key, 660 Watt	1	100	180	**1.23**
44	Keyless	1	100	176	**1.17**
149	Pull	1	50	90	**1.47**
421	Key	1	100	180	**1.20**
622	Key, 660 Watt	1	100	180	**1.23**
414	Keyless	1	100	176	**1.17**
413	Pull	1	50	90	**1.47**



No. 68136 Shurlok

With Large Concealed Base

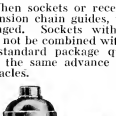
Mfrs. No.	Style	Wt.Lbs. Std.Pkg	Price Each
60430	Key	69	**$0.76**
619	Key, 660 W.	69	**.79**
60431	Keyless	65	**.73**
156	Pull	69	**1.03**
	With Brass Covered Base		
68136	Key	45	**.81**
627	Key, 660 W.	45	**.84**
68137	Keyless	44	**.78**
68138	Pull	38	**1.08**

Ten in a Carton; 100 in a Standard Package.

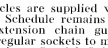
P & S SOCKET ACCESSORIES
Schedule B—N. E. C. Standard

FLUTO AND FLUTOLIER PULL SOCKETS AND RECEPTACLES WITH EXTENSION CHAIN GUIDES

When sockets or receptacles are supplied with extension chain guides, the Schedule remains unchanged. Sockets with extension chain guides may not be combined with regular sockets to make up standard package quantity. Special finishes take the same advance as regular sockets or receptacles.



Socket with Extension Chain Guide



Standard Chain Guide

Extension Chain Guide

FLUTO CHAIN GUIDES

Mfrs. No.	Schedule	Extension In.	Carton	Std. Pkg.	Price Each — Attached	Price Each — Separate
			Standard Type			
1103	B	.....	250	250	.....	**$0.05**
			Extension Type			
1104	B	3/8	25	50	**$0.10**	**.05**
1105	B	3/4	25	50	**.10**	**.05**
1106	B	1	25	50	**.10**	**.05**
1107	B	1 1/4	25	50	**.10**	**.05**
1108	B	1 1/2	25	50	**.10**	**.05**
1109	B	1 3/4	10	50	**.10**	**.05**
1110	B	2	10	50	**.10**	**.05**

Chain guides are ordered separately from sockets and in assorted quantities. The standard package is 100.

FLUTOLIER CHAIN GUIDES

Flutolier chain guides are not interchangeable with Fluto chain guides.

Mfrs. No.	Schedule	Extension In.	Carton	Std. Pkg.	Price Each — Attached	Price Each — Separate
			Standard Type			
1112	B	.....	250	250	.....	**$0.05**
			Extension Type			
1113	B	3/8	25	50	**$0.10**	**.05**
1114	B	3/4	25	50	**.10**	**.05**
1115	B	1	25	50	**.10**	**.05**
1116	B	1 1/4	25	50	**.10**	**.05**
1117	B	1 1/2	25	50	**.10**	**.05**
1118	B	1 3/4	25	50	**.10**	**.05**
1119	B	2	25	50	**.10**	**.05**

Chain guides are ordered separately from sockets and in assorted quantities. The standard package is 100.

For special finishes add to list **$0.02** for Standard and **$0.10** for Extension types.

SOCKET WITH INSULATED CHAIN

Pull sockets or receptacles when furnished with insulated chain, as illustrated, add to list price **$0.08**. Chain pull or receptacle bodies when furnished without chain and ball take a reduction in the list price of **$0.05**. Standard package unchanged.

P & S SOCKET ACCESSORIES
EXTRA PARTS FOR CHAIN PULL SOCKETS AND RECEPTACLES

Mfrs. No.	Schedule	Std. Pkg.	Price Per Foot or Each	Add for Special Finish
			No. 299	**No. 1120**
			Chain Pull Splicing Link	
299	SM	200	**$0.02 1/2**	**$0.04**
			Short Chain, Splicing Link, 6 Ft. Linen Cord With Ball	
†**575**	B	250	**.20** each	**.03**
			Linen Cord	
576	SM	120 Ft.	**.01**	.....
			Pull Chain	
***578**	SM	1000 Ft.	**.05**	**.05**
			3 Foot Linen Cord with Ball	
579	B	250	**.09** each	.....
			6 Foot Linen Cord with Ball	
580	B	250	**.16** each	.....
			8 Inch Pull Chain with Ball	
581	B	250	**.13** each	**.08**
8 Inch Pull Chain with Fibre Insulation and Ball				
582	B	250	**.28** each	**.12**
			18 Inch Pull Chain with Ball	
583	B	250	**.21** each	**.13**
18 Inch Pull Chain with Fibre Insulation and Ball				
584	B	250	**.36** each	**.17**
			Ball for Pull Socket Chain	
585	SM	250	**.06** each	**.02**
			Black Composition Ball	
586	SM	250	**.06** each	.....
			Insulating Link	
1120	SM	100	**.08** each	**.04**

†The short chain is 3¾ inches over all and will therefore extend about 2½ inches below the bell mouth or chain opening in the device.

*P & S 578 pull chain cannot be supplied in special finishes in lengths greater than 100 feet.

Extra pull chain when sold attached to sockets or receptacles lists at **$0.10** per foot.

Pull chain shorter than 8 inches, when attached to devices, will be charged at full 8 inch price.

FLUTO AND FLUTOLIER SOCKET PARTS
Caps, Shells, Linings and Interiors

Description	Schedule B Std. Pkg.	Price Each
Caps, 1/8 Inch without Lining	250	**$0.06 1/2**
Caps, 1/4 Inch without Lining	250	**.15 1/2**
Caps, 3/8 Inch without Lining	250	**.12 1/2**
Caps, Pendent without Lining	250	**.06 1/2**
Shells, Key, without Lining	250	**.10**
Shells, Keyless, without Lining	250	**.10**
Shells, Pull, without Lining	250	**.10**
Linings, Shell, all Types	250	**.03**
Linings, Cap, all Types	250	**.00 1/2**
Interiors, Key	250	**.20**
Interiors, Key, 660 Watts	250	**.23**
Interiors, Keyless	250	**.17**
Interiors, Pull without Chain or Ball	250	**.29**
Interiors, Pull with Chain, Ball and Guide	250	**.42**

BRASS MOGUL SOCKET PARTS
Caps, Shells, Linings and Interiors

Description	Schedule B Std. Pkg.	Price Each
Caps, 3/8 Inch, without Lining	50	**$0.75**
Caps, 1/2 Inch, without Lining	50	**.75**
Shells, Keyless, without Shadeholder or Lining	50	**.55**
Shells, Keyless, with Shadeholder, without Lining	50	**.85**
Linings, Cap, all Types	50	**.03**
Linings, Shell, all Types	50	**.10**
Interiors, Keyless	50	**.37**

For complete listing of mogul caps and bodies see mogul chart.

P & S SOCKET ACCESSORIES

SOCKETS—WITH EXTRA LONG KEYS

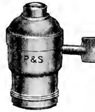
The standard length of keys is ⅞ inch. Sockets and receptacles with longer keys, for use with flat shades, or where installed in socket covers or husks, can be furnished. Sockets with extra long keys may not be assorted to make up standard packages.

	Price Each
Devices with 1½ Inch Keys, Carton, 25; Standard Package 100; Add to List	$0.05
Devices with 2 Inch Keys, Carton, 10; Standard Package, 100; Add to List	.05

SOCKETS WITH BRASS KEYS

250 Watt—250 Volt

These sockets are provided with threaded mandrels and ⅞ inch brass keys. Have Fluto interchangeable shells. The brass keys are threaded and detachable, making it possible to use these sockets in very tight husk work.



No. 311

Mfrs. No.	Style and Size	Cap, Inches	Carton	Std. Pkg.	Wt. Lbs Std. Pkg.	Price Each
311		⅛	25	100	30	**$0.43**
311	Shurlok	⅛	25	100	31	**.70**
100400	Without Key	⅛	25	100	30	**.40**
312		¼	25	100	30	**.52**
312	Shurlok	¼	25	100	31	**.79**
313		⅜	25	100	30	**.49**
313	Shurlok	⅜	25	100	31	**.76**
S-16	Body only, No Cap		25	100	19	**.33**

Any Fluto key socket or receptacle can be furnished with the threaded mandrel and brass key. The advance for special finishes on such sockets is same as for standard sockets. Standard packages, where the quantities exceed 100, are reduced to that figure; where the quantities do not exceed 100, standard packages remain the same. Brushed brass is the standard finish.

Additions to list prices of sockets and receptacles provided with brass keys, or threaded mandrels, are as follows:

	Add to List, Price Each
With Threaded Mandrel, 6-32 Thread	**$0.07**
With ⅞ Inch Brass Key	**.10**
With 1½ Inch Brass Key	**.15**
With 2 Inch Brass Key	**.15**

BRASS KEYS ONLY

These keys will fit threaded mandrels, 6-32 thread. Brushed brass is the standard finish.

Mfrs. No.	Length, Inches	Carton	Std. Pkg.	Price Each
1100	⅞	100	100	**$0.05**
1101	1½	100	100	**.10**
1102	2	100	100	**.10**

P & S DEVICES AND ACCESSORIES

IN SPECIAL FINISHES

Finish	Class	Finish	Class
Barlf, Bauer	B	Copper, Antique	C
Brass, Sand Blast Antique	E	Copper, Mottled	B
Brass, Sand Blast Brush	D	Copper, Brush	B
Brass, Flemish	B	Copper, Oxidized	B
Brass, Lemon	A	Copper, Polished	B
Brass, Oxidized	B	Enamel, White	C
Brass, Polished	A	Gilt, Rich	A
Bronze, Brush	B	Gun Metal	B
Bronze, Japanese (Dark)	C	Nickel, Dull	B
Bronze, Polished	B	Nickel, Polished	B
Bronze, Statuary (Light)	C	Silver, Butler's (Brushed)	F
		Silver, Satin	F
		Silver, Oxidized	F
		Silver, Polished	F
		Verde-Antique	E

Class of Finish	Com. Device With Caps *	†	Parts ††	‡	§	¶	‖	°
A	**$0.06**	**$0.07**	**$0.03**	**$0.04**	**$0.03**	**$0.12**	**$0.04**	**$0.10**
B	**.10**	**.12**	**.05**	**.07**	**.05**	**.16**	**.08**	**.15**
C	**.16**	**.20**	**.08**	**.12**	**.08**	**.25**	**.10**	**.20**
D	**.18**	**.22**	**.09**	**.13**	**.09**	**.28**	**.08**	**.25**
E	**.22**	**.26**	**.11**	**.15**	**.11**	**.30**	**.12**	**.30**
F	**.20**	**.30**	**.10**	**.20**	**.10**	**.25**	**.14**	**.45**

*Brass Shell Key, Keyless and Push Devices, Canopy Switches.

†Brass Shell Pull Devices.

††Brass Shell Key, Keyless and Push Bodies, All Shade Holders.

‡Brass Shell Pull Bodies.

§Brass Shell Socket Caps and Brass Mounted Porcelain Socket Caps.

¶One-Piece Brass Shell Wall and Ceiling Receptacles and Fluto Bases.

‖Metal Covered Attachment Plug Caps, 10 Ampere Caps.

°Single Flush Plates. For multiple gang plates these charges cover first gang only, for the second or any additional units of a multiple gang plate the charge is **$0.10** list per gang for all special finishes listed.

The standard finish unless otherwise noted, is brush brass. Standard and special finishes on devices of one number may be assorted to make up the standard package quantity.

The tabulated prices of special finishes above apply to small lots, but when ordering in quantity lots of one order, one number and one finish, the extra list for the special finish only will be reduced as follows:

Socket Material		Plates	
250– 500	10%	100– 500 Gangs, 1 finish	10%
500–1000	20%	500–1000 Gangs, 1 finish	20%
1000, Over	30%	1000 Gangs, Over, 1 finish	30%

*For multiple gang plates these charges cover the first gang only; for the second or any additional units of a multiple gang plate the charge is **$0.10** list per gang for all special finishes listed.

Mogul shells and caps take double the list prices shown above.

Special finishes on brass keys, advance **$0.05** each.

Chain guides, advance **$0.02** for standard and **$0.10** for extension chain guides.

Pull sockets or receptacles when furnished with insulated chain, add to list **$0.08.**

Pull devices in white enamel but with chain eyelet—chain and acorn in nickel will be furnished at **$0.02** list advance over price shown for white enamel key, keyless and push sockets.

Pull sockets in brush brass finish, but with the chain eyelet, chain and acorn in special finish, add an advance of **$0.06** to the list price of socket.

No. 578 pull chain, list **$0.05** per foot. Standard package 1000 feet. Carton 200 feet. Chain cut to length under 100 feet, **$0.10** per foot. Standard package 250 feet, carton 50 feet.

No. 585, ball for pull chain, advance for special finish, **$0.02.**

P & S ACCESSORIES

The wrenches shown have been carefully designed to aid the users of P & S material in assembling fixtures or installing sign receptacles.

PORCELAIN RING TYPE SIGN RECEPTACLE WRENCH

For use in installing the ring type porcelain receptacles in ceiling fixtures or spun brass units. The porcelain rings of P & S sign receptacles fit closely in the cupped end of this wrench and may be installed where there is little room at the sides of the receptacle.

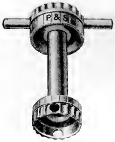
Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std Pkg.	Price Each
1140	XA	1	10	5	**$0.75**

P & S NO. 1260 PORCELAIN FIXTURE SOCKET WRENCH

Designed for exclusive use when installing P & S porcelain fixture sockets in socket covers or husks.

Mfrs. No.	Schedule	Carton	Std Pkg.	Wt.Lb. Std.Pkg.	Price Each
1260	XA	5	10	1½	**$0.75**

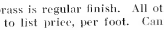
FLUTO AND FLUTOLIER SOCKET



This wrench is double-headed so that it may be used on both Fluto and Flutolier socket installations. For husk work it is found invaluable. The caps fit snugly on the corrugations and with the aid of the wrench the caps may be inserted in socket covers or husks and turned up to the shoulder on the fixture arm or nipple.

Mfrs. No	Schedule	Carton	Std Pkg	Wt.Lb. Std.Pkg.	Price Each
1261	XA	5	10	1½	**$0.75**

BRASS PLATED IRON FIXTURE CHAIN



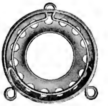
No. 1178

Brush brass is regular finish. All other finishes add **$0.10** to list price, per foot. Cannot be supplied in special finishes in lengths greater than three feet, as the chain is packed regularly in three foot lengths.

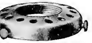
Mfrs. No.	Schedule	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Per Ft.
1178	SM	99 Ft.	45	**$0.20**

P & S SHADE HOLDERS

"UNO" SHADE HOLDERS



No. 502



No. 501

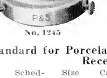
No. 532

"Uno" shade holders are threaded to receive threaded bead of brass sockets and receptacles.

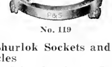
Mfrs. No.	Schedule	Size In.	Carton	Std Pkg	Wt.Lb. Std Pkg.	Price Per 100 Finished	Price Per 100 Unfinished
			With Screws				
501	D	2¼	50	500	35	**$6.00**	**$5.50**
			Solid—With Screws				
532	D	2¼	50	500	35	**8.50**	**7.75**
			Wire Spring				
502	D	2¼	50	250	20	**9.25**	**8.75**
			Solid—Wire Spring				
533	D	2¼	50	250	20	**9.05**	**8.00**
			Form H With Screws				
503	D	Form H	25	250	30	**15.50**	**13.75**
			Form H Wire Spring				
504	D	Form H	25	100	15	**15.90**	**14.20**
			With Screws				
505	D	3¼	25	250	37	**14.85**	**13.05**
			Solid—With Screws				
534	D	3¼	25	250	37	**15.90**	**14.20**
			Wire Spring				
506	D	3¼	25	100	18	**19.00**	**17.50**
			Solid—Wire Spring				
535	D	3¼	25	100	18	**19.35**	**17.85**
			With Screws				
511	D	4	10	100	20	**20.55**	**18.35**
			Solid—With Screws				
536	D	4	10	100	20	**23.45**	**21.65**
			Banner Screwless				
732	D	2¼	50	500	48	**8.50**	**7.75**

Old or brush brass is the regular finish and will be supplied when no finish is specified.

FOR PORCELAIN SOCKETS AND RECEPTACLES



No. 1245



No. 119

Mfrs. No.	Schedule	Size In.	Carton	Std. Pkg	Wt.Lb. Std.Pkg.	Price Per 100
		Standard for Porcelain Shurlok Sockets and Receptacles				
1245	XA	2¼	20	100	18	**$17.00**
1246	XA	3¼	20	100	18	**25.50**
		Shade Holders for Porcelain Sockets and Receptacles				
119	SM	2¼	24	288	25	**8.50**
1190	SM	3¼	12	144	16	**16.25**

Standard finish above shade holders is brush brass.

HUBBELL SHADE HOLDERS

Shade holders with contractile collars will fit threaded as well as beaded shell sockets. Stamped from heavy wrought brass. Brush brass is standard finish. Special finishes take an advance in price.

Schedule D

THREE-SCREW TYPE VENTILATED

No. 5339

Mfrs. No.	Size In.	Std. Pkg	Wt.Lbs. Std.Pkg.	Price Per 100
Finished				
5339	2¼	500	40	**$6.00**
5340	3¼	250	27	**14.85**
5595	4	100	20	**20.55**
Unfinished				
5339	2¼	500	40	**5.50**
5340	3¼	250	27	**13.05**
5595	4	100	20	**18.35**

SOLID

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
Finished				
5594	2¼	500	42	**$8.50**
5596	3¼	250	30	**15.90**
5597	4	100	20	**23.45**
Unfinished				
5594	2¼	500	42	**7.75**
5596	3¼	250	30	**14.20**
5597	4	100	20	**21.65**

No. 5594

SEPARATE SPLIT RINGS FOR SHADE HOLDERS

No. D1675. Per Hundred.................................**$2.00**
Standard Package, 200.

LOCKING SPRING TYPE VENTILATED

No. 5528

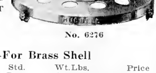
Globe is held by spring wire clamp.

For 2¼ Inch Shades

Mfrs. No.	Desc.	Std. Pkg.	Wt.Lbs. Std. Pkg.	Price Per 100
5528	Finished....	250	17	**$9.25**
5528	Unfinished	250	17	**8.75**

FOR MOGUL BASE SOCKETS

Provided with clamping rings for securing to sockets and with three screw fastening for shades.



No. 6276

Mfrs. No.	Size In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
Ventilated—For Brass Shell				
6276	4	100	20	**$40.00**
Solid—For Porcelain				
6636	3¼	100	20	**37.00**
6637	4	100	20	**45.00**

Carton No. 6276, 20; Nos. 6636, 6637, 10.

BRYANT SHADE HOLDERS

FOR SCREW-RING PORCELAIN RECEPTACLES

Schedule D—N. E. C. Standard

No. 521

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std Pkg.	Price Per 100
2¼ Inch—Ventilated Finished				
521	25	100	14	**$15.00**
3¼ Inch				
522	25	50	8	**20.00**

For sockets and receptacles 2¼ inches.

Mfrs. No	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
578	D	50	500	34	**$0.10**
With Spring Grip					
654	D	50	500	35	**.12**

No. 578

Regular finish is brush brass.

WEATHERPROOF SHADE HOLDERS

No. 628

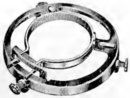
May be used with any porcelain or composition sockets or receptacles which are provided with a shade-holder groove. Regular finish is brush brass, which will be supplied when finish is not specified.

Mfrs. No.	Schedule	Size In.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100 Finished
628	D	2¼	25	250	25	**$8.50**
629	D	3¼	10	100	17	**16.25**

Regular finish is brush brass. Not N. E. C. S.

ACME SHADEHOLDERS

Size, 2¼ Inches
Weight, Per Gross, 7 Lbs.
Price per 100............**$7.50**

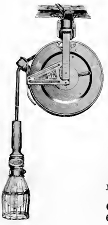


SOCKET BUSHINGS

Composition

Mfrs. No.	Size Cap In.	Size Hole In.	Std. Pkg.	Price Per 1000
9165	⅛	$\frac{9}{32}$	1000	**$ 7.50**
50787	⅜	$\frac{13}{32}$	500	**10.00**

AUTEX AUTOMATIC EXTENSION REEL



Equipped with reinforced cord, portable socket, handle and guard. Can be attached to any ceiling, beam or conduit. The head is provided with a swivel joint which enables the lamp to be carried in any direction from the reel. Cord locked at any point, unlocked, and rewound automatically.

Made in two standard sizes, the No. 6 type having a disc measuring 9 inches in diameter and carrying 25 ft. of cord, and the No. 6-6 type having a 12 inch disc and carrying 50 ft. of same cord.

Mfrs. No.	Price Each
6	**$15.00**
6–6	**25.00**

CORD ADJUSTERS

TWO BALL—STYLE A

For use in stores, factories, warehouses, etc. Regular finishes, black, aluminum and gold.

Mfrs. No	Diam. Balls Inches	Price Each
A	2½	**$2.00**

TWO BALL—STYLE B

Similar in appearance and operation as Type A, but finely finished. For use in offices, homes, public buildings, etc. Regular finishes, oxidized or brushed brass.

Mfrs. No	Diam. Balls Inches	Price Each
B	2½	**$2.90**

With extra heavy lower ball, for use with heavy glass shades, weighing about one pound, add **$0.70** to above prices.

DUMBELL STYLE

Turned from hardwood. Shellac finish. Are made to accommodate twisted lamp or reinforced show window cord. Prevent injury to cord insulation.

Mfrs. No.	Description	Price Per 100
3	For Twisted Lamp Cord	**$6.00**
4	For Reinforced S. W. Cord	**7.00**

FIBRE STYLE

Cut from heavy sheet fibre. Securely holds cord. Can be installed after connections are made.

Mfrs. No.	Description	Price Per 100
1	For Twisted Cord	**$2.70**
2	For Reinforced S. W. Cord	**8.00**

UNIVERSAL STYLE

A black enameled spool which can be quickly attached to cord without tools or removing socket.

Mfrs No	Description	Length Inches	Price Per 100
1417	Standard	3⅜	**$7.00**
1418	Factory	5⅛	**9.00**
1419	Reinforced cord	5⅝	**10.00**

IMPROVED STYLE

Description	Price Per 100
Ebonized Wood	**$0.75**

WOOD BALLS

Description	Price Per 100
For Type C Cord	**$1.15**
For Reinforced Portable Cord	**1.15**

P & S PENDENT SWITCHES

STANDARD—Schedule XA

Stamped wrought brass fibre lined shells. Brushed brass is standard finish for Nos. 3000 or 3090; polished nickel for No. 3091. Standard finishes will be furnished unless otherwise specified. Special finishes can be furnished at an advance of **$0.10** each list.

TWO-BUTTON SINGLE-CIRCUIT PENDENT

6 Amperes, 125 Volts—3 Amperes, 250 Volts

No. 3000

These switches are provided with double bushing. A slight turn automatically locks the shell and buttons are protected by a double-shoulder. Lower half of shell is anchored to body.

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
3000	10	100	33	**$0.50**

PONY PENDENT PUSH BUTTON

6 Amperes, 125 Volts—3 Amperes, 250 Volts

Pendent cap. An especially neat appearing small push button switch.

Mfrs No	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
3090	10	100	30	**$0.50**

No. 3090

FEED THROUGH PUSH BUTTON

6 Amperes, 125 Volts—3 Amperes, 250 Volts
Polished Nickel Finish

No. 3091

Especially designed for use on heating device cords, the polished nickel finish matching the finish of the devices.

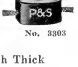
Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
3091	10	50	13	**$0.60**

P & S CANOPY SWITCHES

FOR SPUN AND CAST CANOPIES

3 Ampere, 125 Volt—1 Ampere, 250 Volt

The switch stems are ⅜ inch outside diameter, 27 threads per inch. Fitted with 6 inches No. 18 B & S stranded fixture wire.



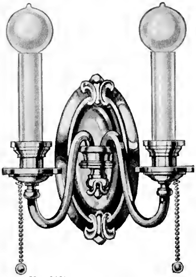
No. 3303

No. 3300

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
For Canopies $\frac{1}{16}$ Inch Thick				
3300	10	100	14	**$0.60**
3302	10	100	14	**.60**
For Canopies ¼ Inch Thick				
3301	10	100	15	**.65**
3303	10	100	15	**.65**

Nos. 3300, 3301, 3302 and 3303 may be assorted in unbroken cartons to make standard package quantities.

P & S CANDLE FIXTURE SOCKETS



No. 1215 on Candle Bracket

Designed to eliminate awkward and difficult wiring in a limited space, as the wires are brought through the fixture arms and thence directly to the terminals on the outside of the socket body. Large binding screws, deep raceways or wires, works smoothly in standard candles. Chains are fitted with snap lock balls which permit chains to be brought through bell-mouth in the bobesche when desired. Standard No. 3 Socket Chain with snap lock ball is used on P & S No. 1215, this small chain harmonizing perfectly with the design of fixtures on which used. Standard length of chain is 8 inches.

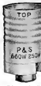
KEYLESS

660 Watts—250 Volts

Length over all, 2⅝ inches; length over body, 1⅞ inches. May be used in candles or tubing measuring not less than 1¼ inches inside diameter.

Mfrs. No.	Size, Nipple	Carton	Std Pkg.	Wt.Lbs. Std Pkg.	Price Each
198	⅛ Inch	25	250	30	**$0.18**

No. 198



No. 1005

RIGID YOKE

Mfrs. No	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
4004	25	250	30	**$0.18**
CLOSE NIPPLE				
4005	25	250	30	**.18**

CHAIN PULL

250 Watts—250 Volts

Length over all, $3\frac{11}{16}$ inches; length of body, 2⅞ inches.

Mfrs. No	Size, Nipple	Carton	Std. Pkg	Wt.Lbs. Std Pkg.	Price Each
1215	⅛ Inch	10	100	26	**$0.75**

No. 1215

No. 4230

CLOSE NIPPLE

Mfrs. No	Carton	Std Pkg	Wt.Lbs Std Pkg.	Price Each
4120	10	100	26	**$0.75**
RIGID YOKE				
4230	10	100	26	**.75**

P & S CANDLE FIXTURE SOCKETS

CANDLE LENGTH

No. 1901

These sockets may be used in candles or tubing measuring not less than 1¼ inches, inside diameter. Interior is supported by a rigid hickey or leg which gives ample room for free wiring. The fibre casing has a highly glazed white enamel surface and allows the socket to be used without casing if so desired. Chains in P & S No. 1901 are fitted with snap lock balls, which permit chains to be brought through bell-mouths in bobesches when desired. Standard length of chain is 8 inches. Dimensions of both keyless and chain types are the same; length over all 4⅞ inches; length of body $4\frac{9}{16}$ inches.

KEYLESS—660 Watts—250 Volts

Mfrs No	Carton	Std Pkg	Wt Lbs Std.Pkg.	Price Each
1900	10	100	30	**$0.50**
PULL CHAIN—250 Watts—250 Volts				
1901	10	100	30	**.90**

P & S CANDELABRA SOCKETS

CANDELABRA BASE

75 Watts—125 Volts

Designed for use on fixtures equipped with glass candles, and are usually supported by a short tube, rod or nipple. When installed, glass candles cover the supporting tube, socket and wires leading to socket terminals. If miniature lamps are to be used, miniature adapter may be inserted in the candelabra base sockets.

MALE THREAD

With 312 Male Thread

27 Threads per Inch

Outside diameter of porcelain body is ¾ inch.

Mfrs No	Carton	Std. Pkg.	Wt.Lbs Std.Pkg.	Price Each
328	50	200	10	**$0.21**

No. 328

No. 347

FEMALE THREAD

With ⅛ Inch Female Thread Nipple

Outside diameter of porcelain body is ¾ inch.

Mfrs. No	Carton	Std. Pkg.	Wt.Lbs Std Pkg	Price Each
347	50	200	11	**$0.21**

P & S CANDELABRA ADAPTERS

PORCELAIN

75 Watts—250 Volts

Designed for use with candle sockets when it is desired to use candelabra base lamps. Fits into lamp base of sockets.

No. 1262

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
1262	25	100	6	**$0.15**

P & S OUTLET RECEPTACLES

BRASS COVERED—For Loop Wiring

Schedule A

Stamped wrought brass fibre lined shells, threaded for shadeholders. Brushed brass is the standard finish and will be furnished unless otherwise speeified. May be used on metal eeilings, eoncrete or tiled walls or 3¼ or 4 inch outlet boxes.

PULL—250 Watt, 250 Volt

No. 428

Diameter of base is 4 21/32 inches; height over all, 2 inches. Holes for supporting screws are on 2¾ and 3½ inch centers. Furnished with short chain and 6 feet linen cord and ball.

Mfrs. No.	Carton	Std Pkg	Wt Lbs Std Pkg	Price Each
428	1	50	67	$1.30

KEYLESS—660 Watt, 250 Volt

No. 1010

Diameter of base is 4 21/32 inches; height over all, 1½ inches. Holes for supporting screws are on 2¾ and 3½ inch centers. No. 78 ean be furnished with longer No. 14 rubber covered wire leads at an advanee in list of **$0.04½** per foot, eaeh eonductor.

Mfrs. No.	Carton	Std Pkg	Wt Lbs. Std Pkg	Price Each
	With Terminals			
1010	1	100	110	$0.60
	With 6 Inch No. 14 R. C. Wire Leads			
78	1	100	120	.65

KEYLESS—660 Watt, 250 Volt

No. 1009

Diameter of base is 3 21/32 inches; height over all, 1½ inches. Holes for supporting screws are on 2¾ inch centers. No. 85 ean be furnished with longer No. 14 rubber covered stranded wire leads at an advance in list of **$0.04½** per foot, each eonductor.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
	With Terminals			
1009	1	100	75	$0.45
	With 6 Inch No. 14 R. C. Wire Leads			
85	1	100	100	.50

P & S OUTLET RECEPTACLES

PORCELAIN—For Loop Wiring

Schedule A

Made of high glazed white porcelain. May be used on metal ceilings, concrete or tiled walls, or on 3¼ or 4 inch outlet boxes. Diameter of base is 4 21/32 inches; height over all, 2 5/32 inches. Holes for supporting screws are slotted to take both 3¼ and 4 ineh outlet box spacing.

PULL—250 Watt, 250 Volt

No. 830

Provided with 8 inch insulated nickel plated ehain.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std.Pkg.	Price Each
	Without Shadeholder Groove			
828	1	50	76	$1.20
	With Shadeholder Groove			
830	1	50	76	1.20

PULL—250 Watt, 250 Volt

Holes for supporting screws are slotted to take both the 3¼ and 4 inch outlet box spaeing. Provided with 8 inch niekel plated chain and 6 feet linen cord and ball.

No. 829

With Shadeholder Groove

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std.Pkg.	Price Each
829	1	50	76	1.20

KEYLESS—660 Watt, 250 Volt

No. 860

Holes for supporting screws are slotted to take both the 3¼ and 4 inch outlet box spacing.

With Shadeholder Groove

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std.Pkg.	Price Each
860	1	100	130	$0.60

SUB-BASE ADAPTER--BRASS

For 4 Inch Box Base

The sub-base adapter carries the receptacle or rosette base 1 ineh from the wall and permits unusual variations in the positions of the outlet boxes.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std.Pkg.	Price Each
1410	XA	10	20	15	$0.35

ALL-METAL BASE—FLUTO

BR adapters are threaded for ⅜ inch fixture stud. No. 1162 is designed for loom plates, length screws, ⅞ inch. No. 1164 identical with No. 1162 but with 1½ inch screws. No. 1163 for deep boxes, length screws, 1½ inches. No. 1165 for boxes without fixture studs, length screws, 1½ inches.

4 21/32 Inch Base

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std.Pkg.	Price Each
BR	B	1	100	66	$0.67
		BR Adapters			
1162	XA	50	50	8	.06
1164	XA	50	50	8	.07
1163	XA	50	50	12	.07
1165	XA	50	50	8	.06

P & S OUTLET RECEPTACLES

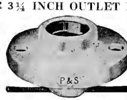
PORCELAIN KEYLESS—Schedule A

Made of high grade glazed white porcelain; especially adaptable for use in hospitals, laboratories and other installations where a sanitary and easily cleaned surface is desired.

WITH WIRE LEADS—660 Watt, 600 Volt

Furnished with 6 inch No. 14 stranded rubber covered wire leads. Longer wire leads may be had at an advance of **$0.04½** per foot list each conductor.

FOR 3¼ INCH OUTLET BOXES

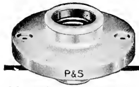


No. 109

Diameter of base is 3½ inches; height over all, 1⅛ inches. Holes for supporting screws are on 2¾ inch centers.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
		With Shadeholder Groove		
40	1	100	85	**$0.40**
		Without Shadeholder Groove		
109	1	100	85	**.35**

FOR 4 INCH OUTLET BOXES



Diameter of base is 1¼ inches; height over all, 1⅛ inches. Holes for supporting screws are on 3½ inch centers.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
		With Shadeholder Groove		
122	1	100	115	**$0.55**
		Without Shadeholder Groove		
121	1	100	115	**.50**

WITH TERMINALS—660 Watt, 250 Volt

FOR 3¼ INCH OUTLET BOXES

Diameter of base is 3½ inches; height over all, 1⅛ inches. Holes for supporting screws are on 2¾ inch centers.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
		With Shadeholder Groove		
41	1	100	85	**$0.40**
		Without Shadeholder Groove		
62357	1	100	85	**.35**

FOR 4 INCH OUTLET BOXES

Diameter of base is 4½ inches; height over all, 1¼ inches. Holes for supporting screws are on 3½ inch centers.

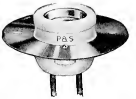
Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
		With Shadeholder Groove		
110	1	100	124	**$0.50**
		Without Shadeholder Groove		
111	1	100	124	**.45**

P & S OUTLET RECEPTACLES

WEATHERPROOF—Schedule A
With Removable Metal Covers

Receptacles are made of high grade glazed white porcelain. Covers are furnished in the finishes designated. Receptacles are furnished with 6 inch No. 14 rubber covered stranded wire leads. Longer wire leads may be had at an advance of **$0.04½** per foot list each conductor. Receptacles are provided with shadeholder grooves.

FOR 3¼ INCH OUTLET BOXES



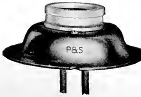
No. 288

660 Watt, 600 Volt

Diameter of cover is 3½ inches; height over all, ⅝ inch. Holes for supporting screws are on 2¾ inch centers.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
		Brushed Brass Cover		
288	1	100	81	**$0.50**
		Japanned Cover		
442	1	100	81	**.40**
		Galvanized Cover		
1176	1	100	81	**.45**

FOR 4 INCH OUTLET BOXES

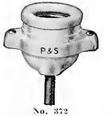


No. 289

Diameter of cover is 4$\frac{1}{16}$ inches; height over all, 1⅝ inches. Holes for supporting screws are on 3½ inch centers. Covers are secured by one screw hole and one slot, it being necessary to remove cover from box, to take out but one screw and, after loosening the other, remove cover by means of open slot.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
		Brushed Brass Cover		
289	1	100	100	**$0.60**
		Japanned Cover		
443	1	100	100	**.48**
		Galvanized Cover		
1177	1	100	100	**.52**

PORCELAIN WEATHERPROOF RECEPTACLE ONLY



No. 372

For use with above covers. Dimensions are 1$\frac{15}{16}$x2$\frac{21}{32}$ inches. Holes for supporting screws are on 2$\frac{5}{32}$ inch centers.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
372	10	100	42	**$0.30**

P & S RECEPTACLES

BAYONET SHELL

Stamped wrought brass fibre lined shells, threaded for shadeholders, are firmly secured to porcelain bases by two screws. Terminals are located at convenient angle and provision is made for large service wires. Brushed brass is the standard finish.

No. 50717

KEYLESS—660 Watt, 250 Volt
With Small Concealed Base

Diameter of base is 2 inches; height over all is 1⅞ inches. Holes for supporting screws are on 1¼ inch centers.

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std Pkg.	Price Each
50717	10	250	60	**$0.25**

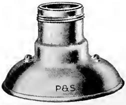
With Small Slotted Base

Diameter of base is 2 inches; height over all 2 inches. Holes for supporting screws are on 1¼ inch centers

No. 108

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std Pkg.	Price Each
108	10	250	60	**$0.25**

WITH MEDIUM BRASS COVERED BASE



No. 60020

Diameter of base is 3 5/16 inches. Height over all is 2¼ inches. Holes for supporting screws are on 1 5/16 and 2 inch centers. Shurlok is part of number and must be included when ordering Shurlok devices.

One in a Carton.

KEYLESS—660 Watt, 250 Volt

Mfrs. No.	Standard Std. Pkg.	Standard Wt.Lbs. Std Pkg.	Standard Price Each	Shurlok Std. Pkg.	Shurlok Wt Lbs. Std.Pkg.	Shurlok Price Each
60020	100	62	**$0.60**	100	65	**$0.87**

P & S SOCKET AND FIXTURE LOOPS

BRASS SOCKET LOOPS

Has threaded shank ¼ inch long with ⅛ inch male thread.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
1170	SM	50	100	14	**$0.11**

BRASS FIXTURE LOOPS

Thread shank 9/16 inch long, complete with ⅛ inch hexagon locknut.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt Lb. Std.Pkg	Price Each
1171	SM	50	100	15	**$0.13**

Designed for use with P & S 1211. May also be used with sockets having ⅜ inch female cap when used for chain pendants. Brush brass finish.

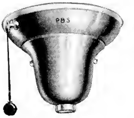
Mfrs. No	Schedule	Carton	Std. Pkg.	Wt.Lb. Std Pkg.	Price Each
1217	SM	20	20	5	**$0.24**

P & S CANOPY ROSETTES

FOR LOOP WIRING—Schedule XA

Old or brushed brass is the standard finish and will be furnished unless otherwise specified. These rosettes will resist side sway and direct suspension of more than 100 lbs. May be used on metal ceilings, concrete or tiled walls, or 3¼ or 4-inch outlet boxes.

PULL CANOPY FIXTURE SWITCH ROSETTES
10 Amperes, 125 Volts—5 Amperes, 250 Volts



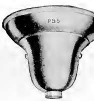
No. 1213

Bell mouth and spring buttons are removable for refinishing. To remove canopy from base it is only necessary to press the spring buttons with thumb and finger. Drop cord wires are snubbed up and over the porcelain cord grip, adding supporting strength to the cord and relieving strain on the terminals. Diameter of base is 4 21/32 inches; height, 3½ inches; holes for supporting screws are slotted for both 3¼ and 4-inch box spacing.

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
⅜ Inch Nipple				
1211	1	20	45	**$1.30**
Porcelain Bushing				
1213	1	20	45	**1.30**

FUSELESS CANOPY ROSETTES
660 Watts, 250 Volts

Spring buttons are removable for refinishing. To remove canopy from base it is only necessary to press buttons with thumb and finger. Drop cord wires are snubbed up and over the porcelain cord grip, adding supporting strength to the cord and relieving strain on the terminals. Diameter of base is 4 21/32 inches; height, 3½ inches; holes for supporting screws are slotted for both 3¼ and 4-inch outlet boxes.



No. 1214

Porcelain Bushing

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
1214	1	50	75	**$0.80**

FUSELESS BRASS COVERED ROSETTES
660 Watts, 250 Volts

Supplied with porcelain bushing, recessed for locknut of P & S 1171 brass fixture loop. Used extensively for chain and cord pendents. Diameter of base is 4 21/32 inches; height, 1¾ inches; holes for supporting screws are slotted for both 3¼ and 4-inch boxes.

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
Spring Clip Contacts				
200	1	50	75	**$0.80**
Binding Screw Contacts				
112	1	50	72	**.80**

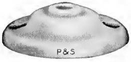
P & S PORCELAIN ROSETTES
Schedule XA

FUSELESS OUTLET BOX

Made of high grade glazed white porcelain. Preferred by the practical wireman to metal covers, as they do not fray the cord or short the circuits. Holes in the pendent type rosettes are recessed to take locknut of P & S No. 1171 fixture loop.

WITHOUT TERMINALS

For 3¼ Inch Boxes—660 Watts, 250 Volts



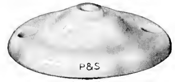
No. 1172

Diameter of rosette, $3\frac{21}{32}$ inches; height, 11 inches; holes for supporting screws are on 2¾ inch centers.

Mfrs. No	Type	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
1172	Pendent	10	100	60	**$0.10**
1167	Blank Cover	10	100	60	**.12**

For 4 Inch Boxes—660 Watts, 250 Volts

Diameter of rosette is $4\frac{21}{32}$ inches; height, 1⅛ inches; holes for supporting screws are on 3½ inch centers.



No. 1173

Mfrs. No.	Type	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg	Price Each
1173	Pendent	5	100	98	**$0.17**
1168	Blank Cover	5	100	98	**.20**

WITH TERMINALS

For 3¼ Inch Boxes—660 Watts, 250 Volts

No. 1174

Diameter of rosette is $3\frac{21}{32}$ inches; height, 1 inch. Holes for supporting screws are on 2¾ inch centers.

Mfrs. No.	Type	Carton	Std Pkg.	Wt.Lbs. Std.Pkg.	Price Each
1174	Pendent	10	100	60	**$0.22**

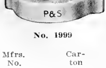
For 4 Inch Boxes—660 Watts, 250 Volts

Diameter is $4\frac{21}{32}$ inches; height, 1⅛ inches. Holes for supporting screws are on 3½ inch centers.

No. 1175

Mfrs. No.	Type	Carton	Std. Pkg.	Wt. Lbs Std. Pkg.	Price Each
1175	Pendent	5	100	105	**$0.30**

CLEAT OR CONCEALED



No. 1999

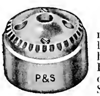
Provision is made for bringing the wires from back of rosette to the terminals when concealed wiring is desirable. Base is $2\frac{25}{32}$x$2\frac{7}{32}$ inches; height, 1¼ inches; holes for supporting screws are on 1⅝ inch centers.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
1999	10	500	124	**$0.10**

P & S PORCELAIN ROSETTES
Schedule XA

LITTLE GEM

Made of high grade glazed white porcelain. Pendent caps are recessed to take locknut of P & S No. 1171 brass fixture loop.



No. 390

CONCEALED BASE

Two-piece rosette with deep recessed base to accommodate loom or tube ends. Diameter of base is 2¼ inches; height, 1 inch. Holes for supporting screws are on $1\frac{13}{32}$ inch centers. Carton, 10; Standard Package, 250. Standard Package Weight, 140 Lbs.

Mfrs. No.	Type	Rating Amp.	Rating Watts	Rating Volts	Price Each
390	Fusible, 2-Piece	2	......	125	**$0.20**
79	Fuseless, 2-Piece	..	660	250	**.16**

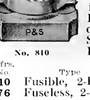
CLEAT BASE

Base is of same width as average cleat, and may be used for cleat work, making a neat practical job. Base is 2⅛x2⅞ inches. Holes for supporting screws are on $1\frac{7}{16}$ inch centers. Carton, 10; Standard Package, 250. Standard Package Weight, 115 Lbs.

No. 400

Mfrs. No	Type	Rating Amp.	Rating Watts	Rating Volts	Price Each
400	Fusible, 2-Piece	2	......	125	**$0.20**
76	Fuseless, 2-Piece	.	660	250	**.16**

MOLDING BASE



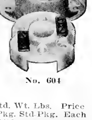
No. 810

The generous width of this base makes this rosette practical for use with various styles of moldings. Base is $2\frac{1}{16}$x$2\frac{1}{16}$ inches. Holes for supporting screws are on $1\frac{21}{32}$ inch centers. Carton, 10; Standard Package, 250. Standard Packago Weight, 117 Lbs.

Mfrs. No.	Type	Rating Amp.	Rating Watts	Rating Volts	Price Each
810	Fusible, 2-Piece	2	......	125	**$0.20**
176	Fuseless, 2-Piece	..	660	250	**.16**

CONCEALED BASE

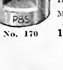
This rosette is wide enough to cover an unusual hole in the wall or ceiling and yet provide ample space for supporting screws. Generous space in cap for wiring and knotting drop cord. P & S No. 605 is recommended where it is desired to tap directly on to the live wires. Diameter is 2½ inches; height $1\frac{11}{16}$ inches. Holes for supporting screws are on $1\frac{31}{32}$ inch centers.



No. 604

Mfrs. No.	Type	Rating Watts	Rating Volts	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
604	Fuseless	660	250	10	250	125	**$0.19**

P & S CEILING BUTTONS

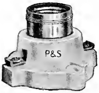


No. 170

Designed to support drop cord extensions. Diamete·, $1\frac{23}{32}$ inches; height, 1⅜ inches; holes for supporting screws are on $1\frac{3}{32}$ inch centers.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std.Pkg.	Price Per 100
170	50	250	56	**$5.70**

P & S PORCELAIN RECEPTACLES
660 Watts, 250 Volts—Schedule B



WITH BRASS SHELL

Keyless cleat, with brass shell, threaded bead for shadeholders. Brushed brass is the standard finish for shell. Base is $2\frac{15}{16}$x$2\frac{11}{16}$ inches, height, 1⅜ inches.

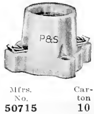
Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
9403	10	250	92	**$0.27**

KEYLESS—HEAVY DUTY

Keyless, heavy duty cleat. Provided with especially broad shoulders for supporting screws. Base is $2\frac{15}{16}$x$2\frac{11}{16}$ inches; height, 1⅝ inches.

No. 4013

Mfrs. No	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
		Without Shadeholder Groove		
9402	10	250	115	**$0.17**
		With Shadeholder Groove		
4013	10	250	115	**.22**



PONY CLEAT

Pony cleat. Diameter of base is 2½ inches. Height, 1⅝ inches. Holes for supporting screws are on $1\frac{15}{16}$ inch centers.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
50715	10	250	82	**$0.12**

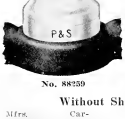
KEYLESS—TWO PIECE

Keyless, two-piece, for open or concealed wiring. Diameter of base is 1⅞ inches; height 1⅞ inches. Holes for supporting screws are on 1⅜ inch centers.

No. 598

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
598	10	250	95	**$0.25**

FOR CONDUIT FITTINGS



No. 88259

Concealed base may be used on conduit fittings. Body is secured to base by center screw. When separated, terminals are exposed for wiring. Shadeholder groove on No. 88259 is 1[illegible] inches in diameter. Diameter of base, 2⅛ inches; height, 2 inches. Holes for supporting screws are on 1⅜ inch centers.

Mfrs. No	Carton	Std Pkg.	Wt. Lbs. Std Pkg.	Price Each
		Without Shadeholder Groove		
451	10	250	114	**$0.25**
		With Shadeholder Groove		
88259	10	250	107	**.30**

P & S PORCELAIN RECEPTACLES
660 Watts, 250 Volts—Schedule B

CONCEALED BASE

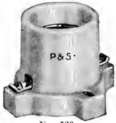
No. 4000

Concealed base, cupped $\frac{5}{32}$ inch. Shell is screwed to base by twin screws in the base. Diameter of base is 2¼ inches; height 2 inches. Holes for supporting screws are on 1⅝ inch centers.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
		Without Shadeholder Groove		
4000	10	250	92	**$0.25**
		With Shadeholder Groove		
4001	10	250	92	**.30**

P & S—MOGUL BASE
1500 Watts—600 Volts

Cleat base, without shadeholder groove. Base is 3½ x3½ inches. Holes for supporting screws are on 2⅞ inch centers.



No. 520

Mfrs No.	Carton	Std Pkg.	Wt.Lbs. Std.Pkg.	Price Each
520	2	50	50	**$0.75**

KEYLESS—FOR ELECTRIC SIGNS
660 Watt, 250 Volt—Schedule B

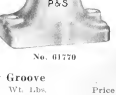
No. 62358

Keyless, with terminals 1 inch from supporting surface. Adapted for damp places and signs. Squared recesses for supporting stove bolts. Base is $2\frac{7}{16}$x$2\frac{3}{32}$ inches; height, 1⅝ inches. Holes for supporting stove bolts are on $1\frac{15}{16}$ inch centers.

Mfrs. No	Carton	Std Pkg	Wt Lbs. Std Pkg	Price Each
62358	10	250	103	**$0.25**

FOR WOOD MOLDING OR CONDUIT FITTINGS
660 Watt, 250 Volt—Schedule B

To use with wood molding, it is only necessary to cut capping, slip terminal base under the wires and place porcelain shell in position. Body and base are secured by rugged center screw. Bases are 2¾x1¾ inches; height, 2 inches; holes for supporting screws are on $2\frac{9}{32}$ inch centers.



No. 61770

Mfrs. No	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
		With Shadeholder Groove		
61670	10	250	72	**$0.35**
		Without Shadeholder Groove		
61770	10	250	72	**.30**

P & S SIGN RECEPTACLES

EDISON BASE—660 Watt, 250 Volt

Schedule C

FOR METAL SIGNS AND OUTLET BOXES

Made of high grade glazed white porcelain and furnished complete with porcelain rings and special gaskets. **Eight notches** in ring type receptacle body to prevent rotating.

No. 61988

Terminals recessed to aceommodate weather-proofing compound. Takes 1½ inch hole; length of back, 1⅛ inches. Wires carried 1 inch from surface.

Mfrs. No.	Carton	Std. Pkg	Wt. Lbs. Std.Pkg.	Price Each
61988	25	250	80	**$0.20**

Contacts are eompletely enclosed by porcelain cover. Takes 1½ inch hole; length of back, 1¾ inches. Wires carried 1 inch from surface. Adapted to theatre border lights, clusters, ete., permitting shallow trough.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
102704	25	250	102	**$0.25**

No. 102704

No. 59108

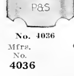
Terminals reeessed to accommodate weather-proofing compound. Takes 1½ inch hole; length of back, $\frac{13}{16}$ inch. Wires carried ⅝ inch from surfaee. Complete with gasket.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg	Price Each
59108	25	250	80	**$0.20**

Contaets are completely enelosed by porcelain cover. Takes 1½ inch hole; length of back, $1\frac{3}{16}$ inches.

Mfrs. No	Carton	Std. Pkg.	Wt.Lbs. Std Pkg.	Price Each
4109	25	250	100	**$0.25**

No. 4109

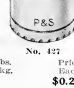

No. 4036

Grooved for shadeholder. Terminals recessed to aceonmodate weather-proofing compound. Takes 1½ inch hcle; length of back, $\frac{13}{16}$ inch. Wires carried ⅝ inch from surface. Fitted with clamping ring and speeial gasket complete.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
4036	25	250	250	**$0.25**

FOR CEILING FIXTURES AND OUTLET BOXES

Body is glazed and terminal recessed and entirely enclosed on sides so that connecting wires may be weather-proofed. Takes 1½ inch hole; length of back, $1\frac{3}{16}$ inches. Wires carried $1\frac{3}{16}$ inches from surfaee.


No. 427

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
427	25	250	70	**$0.20**

P & S SIGN RFCEPTACLES

EDISON BASE—660 Watt, 250 Volt

Schedule C

FOR METAL SIGNS AND OUTLET BOXES

Made of high grade glazed white porcelain and furnished complete with porcelain rings and special gaskets. Fitted with 6 inch stranded No. 14 rubber covered identified wires.

No. 4003

6 inch wire leads, cemented in. Takes 1½ inch hole; length of back, ⅞ inch.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
4003	10	250	100	**$0.28**

Grooved ring. 6 inch wire leads, cemented in. Takes 1½ inch hole; length of back, ⅞ inch.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
4037	10	250	100	**$0.33**

No. 4037

No. 4035

6 inch wire leads, cemented in. Takes 1½ inch hole. Length of back, 1 inch.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
4035	10	250	95	**$0.28**

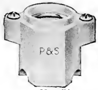
ONE-PIECE RECEPTACLES

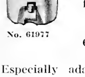
660 Watt, 250 Volt

Furnished complete with supporting serews.

Takes 1⅜ inch hole. Holes for supporting screws are on $1\frac{13}{16}$ inch centers. Length of back, $1\frac{7}{16}$ inches. Carries wires 1¼ inches from surface.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
54	25	250	75	**$0.17**


No. 54

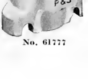

No. 61977

Takes 1⅜ inch hole. Holes for supporting screws are on $1\frac{13}{16}$ inch centers. Length of back, $1\frac{15}{16}$ inches. Carries wires 1 inch from surface.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
61977	25	250	70	**$0.18**

Especially adapted for stage lighting. Takes 1⅜ inch hole. Holes for supporting screws are on $1\frac{13}{16}$ inch centers. Length of back, $1\frac{5}{16}$ inches. Wires are carried 1 inch from surface.

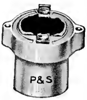
Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
61777	25	250	75	**$0.18**


No. 61777

P & S SIGN RECEPTACLES

Made of high grade glazed white porcelain and furnished complete with supporting screws.

FOR WOOD SIGNS—660 Watt, 250 Volt
Schedule C


No. 61072

Has 1 inch skirt. Holes for supporting screws are on 1 13/16 inch centers. Takes 1½ inch hole. Length of back, on which wires are carried, 9/16 inch.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
61072	25	250	65	$0.17

CANDELABRA BASE—75 Watt, 125 Volt
Schedule C

No. 878

Complete with porcelain ring and rubber gasket. Takes 25/32 inch hole. Length of back is 15/16 inch. Wires are carried ¾ inch from surface.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
878	25	250	30	$0.20

No. 677

Takes 25/32 inch hole. Screw holes are on 1 3/16 inch centers. Length of back is 15/16 inch. Wires are carried 13/16 inch from surface.

Mfrs. No	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
677	25	250	30	$0.18

No. 778

With grooves. Takes 25/32 inch hole. Screw holes are on 1 3/16 inch centers. Length of back is 1 5/16 inches. Wires are carried 1 3/16 inches from surface.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
778	25	250	20	$0.18

P & S WEATHERPROOF RECEPTACLES

MINIATURE—75 Watt, 125 Volt
Schedule XA

No. 422

Fitted with 6 inches No. 18 rubber covered fixture wire leads. Takes 23/32 inch hole.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
422	50	250	21	$0.25

P & S CEILING LIGHT RECEPTACLES

PORCELAIN—250 Watt, 250 Volt
Schedule B

These receptacles are fitted with a porcelain clamping ring and gasket, and are for use with units having a 1½ inch throat. Enclosed terminals.

No. 998

Mfrs. No.	Description	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg	Price Each
994	Pull, With 8 Inch Insulated Chain, 6 Ft. Cord..	10	100	50	$0.91
995	Pull, With 8 Inch Chain..	10	100	50	.75
996	Pull, With 6 Ft. Cord	10	100	50	.75
997	Pull, With 8 Inch Insulated Chain	10	100	50	.83
998	Pull, With Short Chain and 6 Ft. Cord........	10	100	50	.83
999	Pull, With 3 Ft. Chain....	10	100	50	.98

P & S REFLECTOR SOCKETS

TWO-PIECE—FOR TYPE C LAMPS
660 Watts—250 Volts

Made of high grade glazed white porcelain. Entirely front connected and body is easily positioned on cap by heavy porcelain tenons. Ample wiring room or clearance for single or double pair of wires in cap.

No. S-62

PORCELAIN BODIES ONLY

Diameter, 1¾ inches; holes for supporting screws are on 1 3/16 inch centers. Designed for heavy duty. Packed 10 in a unit package carton. Standard package, 100.

Without Shadeholder Groove

Standard—Schd B			Shurlok—Sch. L		
Mfrs. No.	Wt. Lbs. Std. Pkg.	Price Each	Mfrs. No.	Wt. Lbs. Std. Pkg.	Price Each
S-62	44	$0.35	S-72	44	$0.62
With Shadeholder Groove					
S-63	40	.40	S-73	40	.67

COMPLETE WITH METAL CAPS

No. 1236

Provided with solid metal caps. Designed for heavy duty. Diameter, 1¾ inches; height, 2⅛ inches. Holes for supporting screws are on 1 3/16 inch centers. Packed 10 in a unit package carton; standard package, 100. Shurlok is part of number and must be included when ordering Shurlok devices.

⅜ Inch Cap—Without Shadeholder Groove

Standard—Sch. B			Shurlok—Sch. L	
Mfrs. No.	Wt. Lbs. Std. Pkg.	Price Each	Wt. Lbs. Std. Pkg.	Price Each
1235	74	$0.55	74	$0.82
⅜ Inch Cap—With Shadeholder Groove				
1236	70	.60	70	.87
½ Inch Cap—Without Shadeholder Groove				
1237	70	.55	70	.82
½ Inch Cap—With Shadeholder Groove				
1238	67	.60	67	.87

P & S PORCELAIN SWITCH BASES

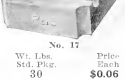
5 or 10 Ampere Sizes
Schedule XA

No. 16

Diameter, 2 19/32 inches. May be used for various types of wall and ceiling receptacles.

Mfrs. No.	Carton	Std Pkg.	Wt. Lbs Std. Pkg.	Price Each
16	25	100	30	$0.06

Dimensions, 2 7/16x2 7/16 inches. Designed primarily for moulding work. May be used in cleat or concealed work, and for various types of wall and ceiling receptacles, or 5 and 10 ampere snap switches.


No. 17

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
17	25	100	30	$0.06

P & S WEATHERPROOF SOCKETS

660 WATT—600 VOLT

Sockets listed below have 6 inch stranded rubber covered wires cemented in. Shurlok is part of the number and must be included when ordering Shurlok devices.

No. 9366

PORCELAIN

Schedule B

With shadeholder groove and 6 inches No. 14 rubber covered wire leads.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
9366	10	250	90	**$0.18**

WITH SHURLOK ATTACHMENT

Schedule L

Porcelain with shadeholder groove, Shurlok attachment and 6 inches No. 14 rubber covered wire leads.

Mfrs. No	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
9366 Shurlok	10	100	35	**$0.49**

No. 9366S

No. 80

PORCELAIN

Schedule B

With shadeholder bead and 6 inches No. 14 rubber covered wire leads.

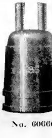
Mfrs. No	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg	Price Each
80	10	250	83	**$0.16**

COMPOSITION

Schedule SM

Black composition with shadeholder groove and 6 inches No. 14 rubber covered wire leads.

Mfrs No.	Carton	Std. Pkg.	Wt. Lbs Std. Pkg.	Price Each
60666	10	250	96	**$0.20**



No. 60666

No. 43310

MOLDED MICA

Schedule SM

With shadeholder groove and 6 inches No. 14 rubber covered wire leads. Not suitable for nitrogen filled lamps.

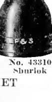
Mfrs. No	Carton	Std. Pkg.	Wt. Lbs Std Pkg	Price Each
43310	10	250	75	**$0.18**

WITH SHURLOK ATTACHMENT

Schedule L

Same as above but with Shurlok attachment. Shurlok is part of the number and must be included when ordering Shurlok devices.

Mfrs. No	Wires, Inches	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
43310	6	10	100	28	**$0.49**
43310A	24	....	100	30	**.63**
43310B	48	....	100	32	**.89**



No. 43310 Shurlok

No. 43312

BRACKET SOCKET

Schedule SM

Molded mica. Not suitable for nitrogen filled lamps.

⅜ Inch Female Nipple

Mfrs. No	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
43312	10	100	30	**$0.60**
½ Inch Female Nipple				
43315	10	100	30	**.60**

P & S WEATHERPROOF SOCKETS

660 WATT—600 VOLT

Sockets listed below have 6 inch stranded rubber covered wires cemented in. Shurlok is part of the number and must be included when ordering Shurlok devices.

No. 43312 Shurlok

SHURLOK—BRACKET SOCKET

Schedule L

Molded mica bracket socket. Not suitable for nitrogen filled lamps.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
43312 Shurlok	10	100	35	**$0.87**
43315 Shurlok	10	100	35	**.87**

SHURLOK—CONDENSITE

Schedule L

Condensite, with 6 inches No. 14 leads, Shurlok attachment and shadeholder groove. Especially suitable for nitrogen filled lamps and will stand rough usage.

Mfrs No	Carton	Std. Pkg	Wt. Lbs. Std Pkg.	Price Each
540 Shurlok	10	100	30	**$0.75**

No. 540 Shurlok

No. 542

CONDENSITE BRACKET SOCKET

Schedule SM

Condensite bracket socket, with ⅜ inch female nipple, 6 inches No. 18 solid fixture wire leads and shadeholder groove. Suitable for nitrogen filled lamps and will stand rough usage.

Mfrs. No	Carton	Std. Pkg	Wt. Lbs. Std. Pkg.	Price Each
542	10	100	30	**$0.86**

WITH SHURLOK ATTACHMENT

Schedule L

Condensite bracket socket with Shurlok attachment, ⅜ inch female nipple, 6 inches No. 18 solid fixture wire leads and shadeholder groove. Suitable for nitrogen filled lamps.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
542 Shurlok	10	100	35	**$1.13**

No. 512 Shurlok

No. 486

ALUMINUM SHELL, BAYONET TYPE

660 Watt, 600 Volt—Schedule B

Mfrs. No.	Cap In.	Carton	Std Pkg.	Wt. Lbs. Std. Pkg.	Price Each
486	⅜	10	50	23	**$0.50**
487	½	10	50	22	**.50**
*__486B__	⅜	10	50	23	**.50**
*__487B__	½	10	50	22	**.50**

* The aluminum shell holds the shadeholders rigid against the porcelain bead.

P & S HUSK OR FIXTURE SOCKETS

PORCELAIN

660 Watt, 250 Volt—Schedule B

Keyless, porcelain with ⅛ and ⅜ inch brass caps. Especially designed for husk or fixture work, as the small diameter permits its use in tight husks. A special wrench for inserting the socket cap in husks is supplied.

Brushed brass is standard finish for cap and will be furnished unless otherwise specified.

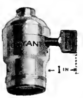
No. 831

Mfrs. No.	Cap In.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
831	⅛	10	100	45	**$0.43**
843	⅜	10	100	45	**.47**

SPECIAL FEATURES FOR BRYANT SOCKETS AND SOCKET TYPE DEVICES

National Electrical Code Standard

DEVICES WITH EXTRA LONG KEYS



Socket with Standard (1 Inch) Key

The medium base key sockets and similar size socket devices listed in this catalog have keys 1 inch long, but can have longer keys on special order, which must specify the distance between the outside of the shell and the end of the key. Otherwise if extra long keys are ordered 1½ inch keys will be supplied. The lengths which can be supplied are 1¼, 1½, 2 and 2½ inches.

For sockets and other devices with keys longer than 1 inch, add to list price of standard device **$0.05**

Standard package quantity, 100 of one length. No assortment permitted.

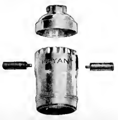
The keys of candelabra and miniature base devices are 11/16 inch long and this is the only length that can be furnished.

DEVICES WITH REMOVABLE PUSH-BUTTONS

Nos. 34, 77 and 81 socket bodies can be supplied, on special order, with removable buttons 2¼ inches long over all; the standard length is 1¾ inches.

For devices with removable buttons add to list price of standard device **$0.07**

Standard package quantity, 100. No assortments permitted.



Socket with Removable Buttons

DEVICES WITH WOODEN PUSH-BUTTONS

Nos. 34, 77 and 81 can be supplied with enameled wood buttons, which resist heat, at an addition to list price of **$10.00** per 1000 sockets. Minimum quantity 1000 sockets of one number, one shipment. No. 77 is not National Electrical Code Standard.

DEVICES WITH METAL KEYS

Socket with Metal Key

Any of the key sockets and key socket devices listed in this catalog can have a metal key as shown in the adjoining illustration. This key is detachable so that it can be given the same finish as the socket or fixture. The standard metal key measures 1 inch from the shell to the end of the key. Other lengths which can be furnished are: 1¼, 1½, 2 and 2½ inches.

For devices with 1 inch metal keys add to list price of standard device **$0.10**

For devices with metal keys longer than 1 inch, add to list price of standard device.... **.15**

Standard package quantity, 100 of one length. No assortment permitted.

SPECIAL FEATURES FOR BRYANT SOCKETS AND SOCKET TYPE DEVICES

National Electrical Code Standard

DEVICES FOR SPECIAL METAL KEYS

Socket for Special Metal Key

Any key socket can be supplied with insulated threaded mandrel to receive a special key furnished by the fixture manufacturer. The unthreaded portion is ¼ inch diameter. The threaded portion will take a key tapped for No. 6 screw, 32 threads to the inch. Add to list price of standard socket........ **$0.07**

Standard package quantity, 100. No assortment permitted.

SOCKETS WITH ART KEYS (Brush Brass Color)

No. 10 socket bodies and combinations of No. 10, will, when specified, be furnished with brush brass composition keys. The color is permanent because it is moulded into the composition. When art keys are desired, specify art key after the catalog number. The list price, schedule, standard package quantity and carton are the same as for sockets with regular keys. No. 10 socket bodies with art keys and regular keys may be assorted in unbroken cartons to make up a standard package quantity.

PULL DEVICES WITH LUMINOUS PENDANTS

Any pull device can be equipped with luminous pendant No. 750 or 751 at an addition to list price of **$0.25** and **$0.28** each respectively. Permanently attached small luminous pendants can be supplied at an addition to list price of **$0.25** each. Devices of the same catalog number with and without luminous pendants may be assorted in unbroken cartons to make up a standard package.

PULL DEVICES WITH EXTENSION CHAIN GUIDES

Pull Socket with ¾ Inch Extension Chain Guide

Pull devices installed in husks or socket covers require extension chain guides to carry the chain through the cover. These chain guides are not in any way a part of the device shell. but are attached to the device mechanism. The extension piece, which is 9/32 inch in diameter, can be unscrewed for installation through the hole in the husk and for refinishing. The male threaded portion of the chain guide extends less than ⅛ inch outside of the device shell. It is not interchangeable on New Wrinkle and Wrinklet sockets, but the extension pieces are interchangeable and can be used on any Bryant socket which is properly equipped with its own male threaded portion of the chain guide.

Extension guides are made only in the following regular lengths: ⅜, ¾, ½, ⅝, 1, 1¼, 1½, 1¾ and 2 inches.

Add to list price of standard device........ **$0.10**

Standard package quantity, 50 of one length or 100 of assorted lengths. No assortment of devices having regular chain guides.

BRYLOCK LOCK ATTACHMENTS

No. AA-15 with "Brylock" Attachment Showing Construction

No. 60019 with "Brylock" Attachment

The use of Bryant sockets equipped with the Brylock attachment prevents the theft of lamps. The attachment consists of a pointed and hardened steel screw supported by a threaded sleeve.

Brylock keys are not supplied with Brylock equipped sockets but must be ordered separately.

No. 83 with "Brylock" Attachment

No. 4100 with "Brylock" Attachment

KEY FOR BRYLOCK SOCKETS

Mfrs. No.	Carton	Carton Wt. Lb.	Price Net
631	10	½	$0.25

BRYANT SOCKETS AND RECEPTACLES WHICH CAN BE SUPPLIED WITH BRYLOCK ATTACHMENT

The cost of a Bryant socket or receptacle with Brylock attachment is **$0.27** list per attachment more than the locking feature. Devices of the same catalog number with and without the attachment may be assorted in unbroken cartons to make a standard package, which will be the same as the standard device. A standard package of Brylock devices is 100 identical devices, carton, 25; except when the standard package of a regular device is less than 100, under which condition the regular standard package and carton quantities apply to the device when equipped with the Brylock attachment.

All Schedule B Except Nos. 674, 675, 684, 685, Which Are Schedule H

Mfrs. No.	Price Each	Mfrs. No.	Price Each	Mfrs. No.	Price Each
10	$0.53	4044	$0.68	4210	$0.99
11	.53	*4051	1.54	4211	.60
12	.56	*4052	1.60	4212	.63
13	.50	4053	1.54	4213	.57
15	.75	4054	1.60	4214	.82
*16	1.35	4061	1.54	4215	.93
17	1.35	4068	1.02	4237	1.07
34	.53	4100	.87	7000	.60
35	.86	4101	.92	7006	.82
80	.53	4102	.72	7009	.57
81	.53	4103	.77	7401	.60
82	.56	4104	1.57	35000	.87
83	.50	4105	1.62	35001	.93
85	.75	4116	1.07	35024	.97
674	2.27	4201	.60	46750	1.19
675	2.42	4202	.63	46751	1.24
684	1.37	4203	.57	50717	.52
685	1.44	4204	.82	59480	.60
*710	.89	4205	.93	59482	.57
4005	1.54	4206	.66	60018	.71
4006	1.60	4207	.69	60019	.68
4039	1.89	4208	.63	60020	.87
4040	1.89	4209	.88	65250	.82
4043	.62	.....	...	.....	....

*Not National Electrical Code Standard.

BRYANT SPECIAL FINISHES

For Brass Shell Sockets, Socket Type Devices, Canopy Switches, Fixture Specialties, Shade Holders and Attachment Plug Caps

The standard finish of all brass shell devices, unless otherwise noted, is brush brass, which will be supplied when the finish is not specified. Devices, except flush plates, unfinished or polished, but not lacquered, will be supplied at the same list prices as brush brass devices.

Standard and special finishes on all devices of one catalog number may be assorted to make up the standard package quantity, which will be the same as though all were standard finish.

Prices on all finishes, other than those listed, including gold, will be quoted on application. Sample of finish desired should always be submitted in order to avoid mistakes and delays.

When special finishes, except flush plate finishes, are ordered in lots of 500 of one catalog number and one finish, the extra list for the special finish only will be reduced 10 per cent.

Finish	Group	Finish	Group
Bauer Barff.....	B	Copper, Mottled ..	B
Brass, Flemish* ..	B	Copper, Oxidized	B
Brass, Lemon.....	B	Copper, Polished..	B
Brass, Oxidized....	B	Gilt, Rich.....	A
Brass, Polished....	A	Gun Metal	B
Brass, Sand Blast*	E	Nickel, Dull.....	B
Brass, Sand Blast†	D	Nickel, Polished ..	B
Bronze, Brush‡..	B	Silver, Butler's†	F
Bronze, Japanese¶	C	Silver, Oxidized ..	F
Bronze, Statuary*	C	Silver, Satin.....	F
Bronze, Polished..	B	Silver, Polished....	F
Copper, Antique	C	Verde Antique.....	E
Copper, Brush§....	B	White Enamel.....	C

*Antique. †Brush. ‡Hardware. ¶Dark. ¶Light. §Dull.

Group	Brass Shell Key Keyless and Push Devices with Caps and Canopy Switches Complete	Brass Shell Pull Devices with Caps Complete	Brass Shell Key, Keyless and Push Bodies, All Shade Holders and Chain Guide Complete	Brass Shell Pull Bodies
A	$0.06	$0.07	$0.03	$0.04
B	.10	.12	.05	.07
C	.16	.20	.08	.12
D	.18	.22	.09	.13
E	.22	.26	.11	.15
F	.20	.30	.10	.20

Group	Brass Shell Socket Caps, Brass Mounted Porcelain Socket Caps, Canopy Switch Nuts and Knob Handles	One-Piece Brass Shell Wall and Ceiling Sockets and Receptacles and New Wrinkle Bases	Metal Covered Attachment Plug Caps 10 Amp.	Metal Covered Attachment Plug Caps 20-25 Amp.
A	$0.03	$0.12	$0.04	$0.08
B	.05	.16	.08	.15
C	.08	.25	.10	.19
D	.09	.28	.08	.16
E	.11	.30	.12	.25
F	.10	.25	.14	.27

For pull devices with shell and cap in white enamel finish but with chain guide, chain and pendant ball in polished nickel add to list price **$0.18.**

For pull sockets with shell and cap in brush brass finish but with chain guide, chain and pendant ball in any special finish listed above add to list price **$0.06.**

When key, keyless, pull and push devices, parts and shadeholders in special finishes are ordered, the prices for finishes in columns 1 to 5 will be reduced as follows:

250 to 499 of 1 finish, 1 number, 1 shipment....10%
500 to 999 of 1 finish, 1 number, 1 shipment....20%
1000 of 1 finish, 1 number, 1 shipment.....30%

THE BRYANT NEW WRINKLE LINE
SOCKET BODIES—N. E. C. Standard

Keyless
660 Watts—250 Volts

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
13	B	25	500	85	$0.23

Can be equipped with lamp grip.

S. P. Key
250 Watts—250 Volts

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
10	B	25	500	100	$0.26

Can be equipped with lamp grip. Standard finish brush brass.

D. P. Key
250 Watts—250 Volts

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
11	B	25	500	100	$0.26

Q. T. Key
660 Watts—250 Volts

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
12	B	25	500	103	$0.29

Push
660 Watts—250 Volts

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
34	B	25	500	92	$0.35

For removable buttons see a following page. Standard finish brush brass.

Pull
250 Watts—250 Volts

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
15	B	25	250	54	$0.48

Can be equipped with lamp grip.

High Capacity Pull
660 Watts—250 Volts

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
35	B	25	250	55	$0.59

Can be equipped with Brylock attachment at an addition to list price of $0.27. Standard finish brush brass.

Pull Switch Rosette

3 Amperes—125 Volts
1 Ampere—250 Volts

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
25	H	10	100	28	$0.53

No. 25 is equipped with a short chain, 10 feet of small linen cord, and a small composition ball.

Pull Switch Rosette

6 Amp.—125 Volts 3 Amp.—250 Volts

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
55	H	10	100	28	$0.59

Standard finish brush brass.

THE BRYANT NEW WRINKLE LINE
SOCKET BODIES—N. E. C. Standard

No. 16

Twin Pull

(Both outlets operate on and off simultaneously.)

Each Outlet 250 Watts—250 V

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
*16	B	10	20	8	$1.08

Side outlet on all the time, bottom on and off.

Bottom Outlet 250 Watts—250 Volts
Side Outlet 660 Watts—250 Volts

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
17	B	10	20	8	$1.08

Nos. 16 and 17 can be equipped with Brylock attachment at $0.27. Can be equipped with lamp grip. Finish brush brass. *Not N. E. C. Standard.

Keyless with Spartan Plug Outlet
Each Outlet 660 Watts—250 Volts

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
32	B	10	50	16	$0.43

Q. T. Key With Spartan Plug Outlet—Each Outlet 660 Watts, 250 Volts

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
31	B	10	50	14	$0.46

Standard finish brush brass.

Can be equipped with Brylock attachment at an addition to list price of $0.27. Can also be equipped with lamp grip.

Pull with Spartan Plug Outlet
Each Outlet 660 Watts—250 Volts

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
33	B	10	50	16	$0.73

Standard finish brush brass.

Can be equipped with Brylock attachment at an addition to list price of $0.27. Can also be equipped with lamp grip.

Spartan Plug Receptacle
10 Amperes, 250 Volts

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
29	H	10	20	4	$0.30

Standard finish brush brass.

SWITCH BODIES—N. E. C. Standard—Pull Wall

3 Amp., 125 Volts—1 Amp., 250 Volts

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
19	H	10	50	11	$0.53

6 Amp., 125 Volts—3 Amp., 250 Volts

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
49	H	10	50	11	.59

No. 19

No. 20

S. P. Pull Ceiling

3 Amp., 125 Volts—1 Amp., 250 Volts

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
20	H	10	100	25	$0.53

6 Amp., 125 Volts—3 Amp., 250 Volts

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
50	H	10	100	25	.59

Standard finish brush brass.

THE BRYANT NEW WRINKLE LINE

SWITCH BODIES—N. E. C. Standard

No. 27

Electrolier Pull Ceiling

3 Amps., 125 Volts—1 Amp., 250 Volts

Operating 1-2-1 and 2-off

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
27	H	10	50	15	$0.83

Positions: First, circuit 1 on; second, circuit 2 on and 1 off; third, circuits 1 and 2 on; fourth, all off.

S. P. Pull Fixture

3 Amp., 125 Volts—1 Amp., 250 Volts

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
21	H	10	50	16	$0.68
6 Amp., 125 Volts—3 Amp., 250 Volts					
51	H	10	50	16	.74

Electrolier Pull Fixture

Switch Body

3 Amperes, 125 Volts

1 Ampere, 250 Volts

Operating 1-2-1 and 2-off

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std Pkg.	Price Each
28	H	10	50	14	$0.98

Nos. 19, 20, 27, 21 and 28 are equipped with short chain, 10 feet cord and composition ball.

Standard finish, brush brass.

SOCKET CAPS—N. E. C. Standard

⅛-Inch Female Cap

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
AA	B	25	500	30	$0.07

No. CX same as No. AA but with insulated side outlet bushing.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
CX	B	25	500	33	.09

¼-Inch Female Cap

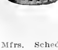
Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
AB	B	25	100	7	$0.16

⅜-Inch Female Cap

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs Std.Pkg.	Price Each
AC	B	25	250	19	$0.13

½-Inch Female Cap

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
AD	B	25	50	5	$0.19



⅛-Inch Male Cap

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt Lbs Std Pkg	Price Each
AE	B	25	100	5	$0.10

¼-Inch Male Cap

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt Lbs. Std.Pkg.	Price Each
AF	B	25	50	3	$0.16

Standard finish brush brass.

THE BRYANT NEW WRINKLE LINE

SOCKET CAPS—N. E. C. Standard

⅜-Inch Male Cap

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
AG	B	25	100	6	$0.16

½-Inch Male Cap

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std Pkg.	Price Each
AH	B	25	50	7	$0.22

Pendent Cap

With composition bushing 13/32-inch diameter.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
AT	B	25	500	22	$0.07

Strain Relief Pendent Cap

With porcelain bushing 13/32-inch hole.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
AU	B	25	500	29	$0.07

Strain Relief Pendent Cap

With porcelain bushing ½-inch hole.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
CB	B	25	100	6	$0.07

⅛-Inch 3-Step Female Fixture Cap

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
AK	B	25	100	8	$0.20

⅛-Inch Female Angle Cap

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
AM	B	25	100	8	$0.21

¼-Inch Female Angle Cap

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std Pkg.	Price Each
AN	B	25	50	5	$0.25

⅜-Inch Female Angle Cap

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt Lbs. Std.Pkg.	Price Each
AP	B	25	50	5	$0.24

⅛-Inch 3-Step Female Angle Cap

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std Pkg	Price Each
AR	B	25	50	6	$0.27

Attachment Plug Cap

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt Lbs. Std Pkg.	Price Each
AV	B	10	50	9	$0.27

Standard finish brush brass.

THE BRYANT NEW WRINKLE LINE

BODY BASES—N. E. C. Standard

Small Covered Base

Outside diameter of base, 2¼ inches; screw spacings, 1¾ inches; standard finish is brush brass.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
BH	10	250	60	**$0.28**

Large Covered Base

Outside diameter of base 3 1/16 inches; screw spacings, 2 inches; standard finish is brush brass.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
BK	10	100	42	**$0.37**

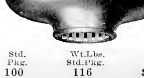
For 3¼ Inch Boxes

Outside diameter base, 3⅝ inches; screw spacings, 2 and 2¾ inches; machine screws furnished for mounting on box; standard finish is brush brass

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
BL	10	100	66	**$0.37**

For 4 Inch Boxes

Outside diameter of base, 4⅝ inches; screw spacings, 2¾ and 3½ inches.



Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
BM	5	100	116	**$0.67**

Slotted

Outside diameter of base 2 1/16 inches; screw spacings 1⅛ inches.

Mfrs. No.	Schedule	Carton	Std Pkg.	Wt Lbs. Std. Pkg.	Price Each
AX	B	10	250	55	**$0.18**

Small Concealed

Outside diameter of base 2 1/16 inches; screw spacings 1⅛ inches.

Mfrs. No.	Schedule	Carton	Std Pkg.	Wt. Lbs. Std. Pkg.	Price Each
AY	B	10	250	55	**$0.18**

Large Concealed

Outside diameter of base 2¾ inches; screw spacings, 2¼ inches. Fits type 500 Adapti-boxes, types GN, HM and W, forms 5 and 10, Octagonal Unilets and sizes 10 round opening pipe taplets.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
AZ	B2	10	100	45	**$0.23**

Angle Concealed

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
BA	B2	10	100	30	**$0.23**

THE BRYANT NEW WRINKLE LINE

BODY BASES—N. E. C. Standard

Cleat Base

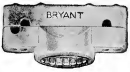
No. AW

Mfrs. No.	Sch.	Carton	Std. Pkg.	Pkg. Wt.	Price Each
AW	B	10	250	85	**$0.23**

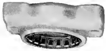
Screw spacings, 2 5/32 in.

Cleat Base With Covered Terminals—Schedule B

Mfrs. No.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
BY	5	100	60	**$0.36**



No. BY

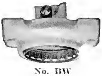


No. BB

Base for ½ and ¾ inch pipe taplets and for wood moulding, and V.V. Fittings covers 43SS, 44SS and 45SS by means of which it can be attached to all ½, ¾ and 1 inch V.V. Fittings types 1, 3, 4 and T. Screw spacings, 2 9/32 inches.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
BB	B	10	100	25	**$0.18**

Base for same size pipe taplets and V.V. Fittings covers as listed for No. BB. Screw spacings, 2 9/32 inches; machine screws furnished for mounting.



No. BW

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
BW	B	10	100	34	**$0.23**

No. BC

Base for ½ inch Obround Condulets and ½ inch types L, LFB and L45 V.V. Fittings; machine screws furnished for mounting on box.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
BC	B	10	100	39	**$0.23**

Base for types 4400, 4500, 4600 and 4700 Adaptiboxes; machine screws furnished for mounting on box

Schedule B

Mfrs. No.	Carton	Std. Pkg	Wt. Lbs. Std. Pkg.	Price Each
DE	10	100	35	**$0.23**

No. DE

No. DF

Base for ½ inch Rectangular Unilets; machine screws furnished for mounting on box.

Schedule B

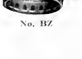
Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs Std Pkg.	Price Each
DF	10	100	35	**$0.23**

Canopy Tap Base

Schedule B

Machine screws furnished for mounting on box; standard finish, brush brass.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
BZ	10	20	6	**$0.22**



No. BZ

BRYANT ASSEMBLED SOCKETS

N. E. C. Standard

Socket body is partially inserted in cap, but latching operation is not completed, so that sockets are easily taken apart for wiring. Other combinations of sockets will be shipped assembled, when specified, without extra charge. Sockets listed below are fitted with ⅛ inch caps.

No. AA-10

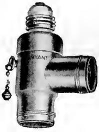
NEW WRINKLE SOCKETS

Mfrs. No. New	Mfrs. No. Old	Schedule	Carton	Std Pkg.	Wt.Lbs. Std. Pkg.	Price Each
Key						
AA-10	59480	B	25	500	127	$0.33
Keyless						
AA-13	59482	B	25	500	112	.30
Pull						
AA-15	65250	B	25	250	65	.60

WRINKLET SOCKETS

Mfrs.No. New	Mfrs.No. Old	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std. Pkg.	Price Each
Key						
WA-80	7000	B	25	500	98	$0.33
Push Button						
WA-81	....	B	25	500	97	.42
Keyless						
WA-83	7009	B	25	500	96	.30
Short Keyless						
WA-95	7001	B	25	500	78	.30
Pull						
WA-85	7006	B	25	250	55	.60

No. WA-85



No. AV-17

THE BRYANT DUBL-DUTY SOCKET

This socket enables user to get two Edison screw base outlets where formerly there was but one; any shade holder can be used, including Uno. Shade is held in original position with reference to lamp.

Dubl-Duty

Mfrs No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
AV-17	B	1	20	11	$1.35

Standard finish, brush brass, will be shipped when finish is not specified. For special finishes, keys, chains and chain guides, see a following page.

DISPLAY OUTFIT

Sockets are packed singly in attractive display cartons. In each standard package of 20 sockets there are included free, 2 empty individual display cartons, a cradle for supporting a socket, and a large display carton to hold the two empty cartons and the cradle.

Display Outfit

THE BRYANT WRINKLET FIXTURE SOCKET LINE

SOCKET BODIES—N. E. C. Standard

Key

250 Watts—250 Volts

Mfrs No	Schedule	Carton	Std Pkg	Wt Lbs. Std.Pkg.	Price Each
80	B	25	500	79	$0.26
660 Watts—250 Volts					
82	B	25	500	....	.29

Can be equipped with lamp grip.

Keyless—660 Watts, 250 Volts

Mfrs. No	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
83	B	25	500	75	$0.23
Short Keyless—660 Watts, 250 Volts					
95	B	25	500	55	.23

Pull—250 Watts, 250 Volts

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std Pkg.	Price Each
85	B	25	250	46	$0.48

Can be equipped with lamp grip.

Push—660 Watts, 250 Volts

Mfrs. No	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
81	B	25	500	78	$0.26

Can be equipped with wooden buttons which resist heat at an advance in list price of **$10.00** per 1000 sockets. Minimum quantity, 1000.

Single Pole—Pull Switch

3 Amperes, 125 Volts

1 Ampere, 250 Volts

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
90	H	10	50	10	$0.53
Single Pole—Pull Fixture Switch					
91	H	10	50	12	.68

CAPS—N. E. C. Standard

⅛ Inch Female Cap

Mfrs No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
WA	B	25	500	27	$0.07

¼ Inch Female Cap

Mfrs. No	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std Pkg.	Price Each
WB	B	25	100	7	$0.16

⅜ Inch Female Cap

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std Pkg.	Price Each
WC	B	25	250	17	$0.13

⅛ Inch Male Cap

Mfrs. No	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std Pkg.	Price Each
WE	B	25	50	4	$0.10

⅜ Inch Male Cap

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std Pkg.	Price Each
WG	B	25	50	4	$0.16

⅛ Inch Female Angle Cap

Mfrs. No	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
WM	B	25	100	7	$0.21

⅜ Inch Female Angle Cap

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
WP	B	25	50	5	$0.24

Pendent Cap—$\frac{13}{32}$ Inch Hole

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
WT	B	25	500	20	$0.07

Standard finish is brush brass.

BRYANT BAYONET SHELL AND COVERED BASE SOCKETS

N. E. C. Standard—250 Volts

The caps and shells fasten together with bayonet lock which is secured by two screws.

Nos. 9392 and 50768 can be equipped with lamp grip. Nos. 35000 and 35001 can be supplied with permanently attached Undark luminous pendant at an addition to list price of **$0.25** each. Devices of the same number with and without luminous pendants may be assorted in unbroken cartons to make standard package.

Mfrs No.	Schedule	Watts	Carton	Std. Pkg.	Wt.Lbs Std.Pkg.	Price Each
With 1/8 Inch Cap						
Key						
***9386**	B	250	25	500	120	**$0.33**
Keyless						
9392	B	660	25	500	120	**.30**
Pull						
***35000**	B	250	25	250	65	**.60**
With 3/8 Inch Cap						
Key						
***50760**	B	250	25	250	65	**.39**
Keyless						
50768	B	660	25	250	62	**.36**
Pull						
***35001**	B	250	25	100	28	**.66**

Key
With Base For Concealed Work
Schedule B

Mfrs. No.	Watts	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg	Price Each
***9184**	250	10	250	89	**$0.44**
Keyless					
9185	660	10	250	83	**.41**

Outside diameter of base, 2 1/16 inches; height 2 7/16 inches. Holes for supporting screws are spaced 1 5/8 inches on centers.

PONY WALL SOCKETS

With Base for Concealed Work

Keyless
Schedule B

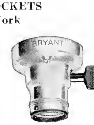
Mfrs. No.	Watts	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
50717	660	10	250	64	**$0.25**

Outside diameter of base, 2 inches; height, 2 inches. Holes for supporting screws are spaced 1¼ inches on centers.

COVERED BASE SOCKETS

For Concealed Work

Small Covered Base
Key
Schedule B



Mfrs No	Watts	Std Pkg.	Wt.Lbs Std.Pkg.	Price Each
***60018**	250	250	95	**$0.44**

Keyless

Mfrs. No	Schedule	Watts	Carton	Std. Pkg	Wt Lbs Std.Pkg.	Price Each
60019	B	660	10	250	91	**$0.41**

Outside diameter of base, 2 3/16 inches; height, 2¼ inches. Holes for supporting screws are spaced 1 5/8 inches on centers.

Standard finish, brush brass.

*Device has single-pole mechanism.

BRYANT SURFACE AND OUTLET BOX RECEPTACLES

Schedule B—N. E. C. Standard

FOR 3¼ INCH OUTLET BOXES

KEYLESS—660 Watts, 250 Volts

No. 4102

Outside diameter of base, 3 5/8 inches; height, 1 5/8 inches. Holes for supporting screws spaced 2¾ inches on centers. Machine screws furnished for mounting on box.

Mfrs. No	Description	Carton	Std. Pkg.	Wt Lbs. Std. Pkg.	Price Each
4102	With Binding Screws..	1	100	70	**$0.45**
4103	With Wire Leads........	1	100	75	**.50**

FOR 3¼ AND 4 INCH OUTLET BOXES

KEYLESS—Schedule B
660 Watts, 250 Volts

Outside diameter of base, 4 5/8 in.; height, 1 5/8 in. Holes for supporting screws are spaced 2¾ and 3½ in. on centers. Machine screws furnished.

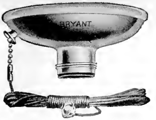
No. 4100

Mfrs. No.	Description	Carton	Std. Pkg.	Wt Lbs. Std Pkg.	Price Each
4100	With Binding Screws....	1	100	102	**$0.60**
4101	With Wire Leads...........	1	100	107	**.65**

Nos. 4103 and 4101 are fitted with 6 inches of No. 14 stranded rubber covered wire. Extra charge with longer wires, **$0.09** per foot (4½ cents each conductor).

FOR 3¼ AND 4 INCH OUTLET BOXES

250 Watts—250 Volts



No. 4104

Outside diameter of base, 4 5/8 in.; height, 2 in. Holes for supporting screws are spaced 2¾ and 3½ in. on centers. Machine screws are furnished for mounting this device on box.

Pull, With Binding Screws

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std Pkg.	Price Each
4104	B	1	50	69	**$1.30**

Pull, With Wire Leads

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
4105	B	1	50	75	**$1.35**

Supplied with a short chain and 6 feet of best quality black linen cord. Longer cords **$0.01** list per foot extra. For longer chains see a following page.

No. 4105 is fitted with 6 inches of No. 14 stranded rubber covered wire. Receptacles with longer wires furnished on special order. Extra charge, **$0.09** list per foot (4½ cents each conductor).

BRYANT CANDLE SOCKETS

N. E. C. Standard

KEYLESS—75 Watts, 125 Volts

Male Thread Stud

Supporting studs are $\frac{5}{16}$ inch outside diameter, 27 threads per inch. Outside diameter porcelain, $\frac{11}{16}$ inch; length porcelain, 1¼ inches; overall, 1$\frac{7}{16}$ inches.

No. 328

Mfrs. No.	Schedule	Style	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
327	B	Min.	50	100	5	**$0.21**
328	B	Cand.	50	100	5	**.21**

Female Thread Bushing

Bushings are threaded for ⅛ inch iron pipe, .405 inch outside diameter, 27 threads per inch. Outside diameter porcelain, $\frac{11}{16}$ inch; length porcelain, 1¼ inch; overall, 1½ inches.

No. 347

Mfrs. No.	Schedule	Style	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
346	B	Min.	50	100	5	**$0.21**
347	B	Cand.	50	100	5	**.21**

PULL SOCKETS—75 Watts, 125 Volts

Female Thread Bushing

The bushing of this socket is threaded for ⅛ inch iron pipe, .405 inch outside diameter, 27 threads per inch. Standard length of chain is 4 inches and standard finish, brush brass.

Mechanism is single-pole.

Can be supplied with permanently attached Undark luminous pendant at an addition to list price of **$0.25** each. Devices of same number with and without luminous pendants may be assorted in unbroken cartons to make standard package.

Mfrs. No.	Sched. ule	Style	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
540	B	Cand.	25	50	5	**$0.75**

TURN SOCKET—75 Watts, 125 Volts

Female Thread Bushing

This is regular No. 540 socket equipped with operating band which fits into an ornamental cup supplied by the fixture manufacturer.

Furnished complete ready to wire, but it is necessary for the lixture manufacturer to supply nipple between socket and operating band supplied with the socket. Operating bands only, **$0.75** list; standard package, 20; carton, 20.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
560	B	20	20	6	**$1.50**

KEYLESS—660 Watts, 250 Volts

Female Thread Hickey

The bushing of this socket is threaded for ⅛ inch iron pipe, .045 inch outside diameter, 27 threads per inch. Outside diameter of paper jacket, 1$\frac{3}{16}$ inches; length of socket, 1⅞ inches; length over all, 2$\frac{13}{16}$ inches.

Mfrs. No.	Schedule	Style	Carton	Std. Pkg.	Wt.Lbs Std.Pkg.	Price Each
4004	B	Med.	25	250	31	**$0.18**

Old style No. 4004 is similar to above, except for a short bushing without hickey.

BRYANT CANDLE SOCKETS

N. E. C. Standard

PULL SOCKETS—Single Pole

No. 4120

The bushings of these sockets are threaded for ⅛ inch iron pipe, .405 inch outside diameter, 27 threads per inch. Mechanism is covered with paper jacket. Outside diameter of jacket, 1$\frac{3}{16}$ inches; length over all, No. 4120, 3$\frac{3}{16}$ inches; No. 4230, 3⅞ inches. Six inches No. 3 chain, brush brass finish, extending 3 inches below candle is standard equipment.

Can be furnished with permanently attached small Undark luminous pendant at an addition to list of **$0.25** each.

No. 4230

Short Female Bushing

Mfrs. No.	Schedule	Style	Carton	Std Pkg.	Wt.Lbs. Std.Pkg.	Price Each
4120	B	Med.	10	50	10	**$0.75**
		Long Female Hickey				
4230	B	Med.	10	50	10	**.75**

Long Female Hickey

No. 4154

Length sockets without slips, 3$\frac{13}{16}$, 4$\frac{5}{16}$ and 4$\frac{13}{16}$ inches respectively. Six inches No. 3 chain, brush brass finish, below candle, is standard finish.

Mfrs. No.	Schedule	Style	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
4153	B	Med.	10	50	12	**$0.75**
4154	B	Med.	10	50	12	**.75**
4155	B	Med.	10	50	12	**.75**

Furnished with permanently attached Undark luminous pendants, at an addition to list price of **$0.25** each. Devices of the same number, with and without luminous pendants, may be assorted in unbroken cartons to make standard package.

HIGH-HEAT COMPOSITION SOCKETS

660 Watts—250 Volts

This socket is intended for use in unit lighting lixtures with Type C gas lilled lamps. Medium base with ⅛ inch female bushing. Diameter of body, 1½ inches. Diameter of brass ring, 1$\frac{25}{32}$ inches. Length over all, 2½ inches.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
4567	B	10	100	34	**$0.42**

SOCKETS FOR FLAT PANS

660 Watts, 250 Volts

Made by soldering 8 inch leads of stranded rubber-covered wire to the terminals of regular No. 95 Wrinklet sockets. Finish is brass, polished but not lacquered. Wrinklet caps cannot be used. Longer leads can be supplied at **$0.09** per foot, **$0.04½** each conductor.

Mfrs. No	Schedule	Style	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
***95014**	B	No. 14	25	250	45	**$0.34**
***95016**	B	No. 16	25	250	42	**.30**
***95018**	B	No. 18	25	250	40	**.28**

*Not National Electrical Code Standard.

BRYANT SOCKET ACCESSORIES

N.E.C. Standard

PULL SOCKET BALLS INSULATING AND SPLICING LINKS

Nos. 512-516

510

No. 513

In those pull devices having a combination of chain and cord. No. 810 splicing link is used to join the two. Standard finish, brush brass, which will be supplied when no other finish is specified. All other finishes special, add to list prices **$0.04** each for both balls and links.

Snap Lock Ball

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
512	H	250	250	1	**$0.06**
With Sleeve for Medium Base Pull Devices.					
516	H	50	50	¼	**.06**
With Sleeve for Candelabra and Miniature Base Pull Devices.					
Splicing Link					
510	H	200	200	½	**.02½**
For No. 6 Chain.					
810	H	200	200	¼	**.02½**
To Connect No. 6 Chain to Small Linen Pull Cord.					
811	H	200	200	½	**.02½**
For No. 3 Chain.					
Insulating Link					
513	H	100	100	½	**.08**
For No. 3 or No. 6 Chain.					

NEW WRINKLE AND WRINKLET CAP WRENCH

Combination Socket Wrench

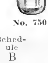
For use in fastening caps to fixtures when the caps are enclosed in husks.

Mfrs. No.	Schedule	Carton	Std Pkg	Wt. Lbs Std. Pkg.	Price Each
NW	H	1	1	½	**$0.50**

UNDARK LUMINOUS PENDANTS

Small Type

No. 751



No. 750

Made of genuine radium luminous material. For attachment to pull chains and devices with pull cords. No. 750, for attachment to pull chains, are also supplied mounted 50 on three color counter display card. Packed in this way the list price is **$0.25** each; standard package, 100; carton, 50 and no less than a carton quantity will be shipped.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
750	B	50	100	1	**$0.25**
For Attachment to Devices with Pull Cords					
751	H	50	100	1	**.28**

BRYANT SOCKET ACCESSORIES

UNDARK LUMINOUS PENDANTS

Large Type

Designed for use in connection with Nos. HS-56 and HS-50 hospital pull toggle control switches. Because of its large size it will be found very advantageous to use in connection with ceiling type and wall type pull switches, such as are listed on another page. It can be connected to pull chains, or used with any kind of a pull cord through hole in metal cap and tying knot in end of cord.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
2915	H	10	30	1	**$0.55**

SOCKET RINGS

Composition Ring—Single Petticoat

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
1273	B	100	100	2	**$0.04**
Double Petticoat					
1274	B	100	100	2	**.04**

No. 1274

Porcelain Ring—Single Petticoat

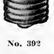
Mfrs. No	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
1435	B	100	100	5	**$0.05**

SOCKET REDUCERS

N. E. C. Standard

Mogul to Medium

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
421	B	10	100	23	**$0.25**
Medium to Candelabra					
392	B	25	100	8	**.10**
Candelabra to Miniature					
391	B	100	100	1	**.06**



No. 392

No. 391

SOCKET ADAPTER

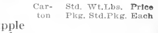
N. E. C. Standard

Inserting this device in a Thomson-Houston socket adapts the socket for use with Edison base lamp.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
9357	B	100	500	20	**$0.04**

SOCKET HANDLES

Schedule H
N.E.C. Standard



No. 1240

Mfrs. No.	Description	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
1240	With ⅛ Inch Nipple and 9/32 Inch Hole for No. 16 Approved Lamp Cord................	25	100	17	**$0.14**
1388	With ⅜ Inch Nipple and 13/32 Inch Hole for No. 16 Approved Portable Lamp Cord	25	100	17	**.14**

BRYANT INTERCHANGEABLE PORCELAIN LINE

SOCKET BODIES—N. E. C. Standard

No. 70

S. P. KEY—250 Watts, 250 Volts

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std Pkg.	Price Each
70	B	10	250	79	**$0.26**
	660 Watts, 250 Volts				
72	8	10	250	79	**.29**

KEYLESS—660 Watts, 250 Volts

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt Lbs. Std Pkg.	Price Each
73	B	10	250	53	**$0.23**

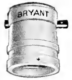
S. P. PULL—250 Watts, 250 Volts

No. 75

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt Lbs. Std Pkg.	Price Each
75	B	10	100	41	**$0.75**
	660 Watts, 250 Volts				
76	B	10	100	43	**.81**

Standard length of chain, 8 inches. Standard finish of chain, brush brass.

S. P. PUSH—660 Watts, 250 Volts



Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs Std. Pkg.	Price Each
71	B	10	100	39	**$0.29**

SPARTAN RECEPTACLE BODY
10 Amperes—250 Volts

Mfrs. No	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
79	H	10	50	9	**$0.15**

SPARTAN CURRENT TAP
660 Watts—250 Volts

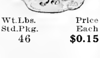
Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
78	H	10	50	12	**$0.20**

CLEAT BASE

Diameter of base, 2½ inches; diameter over lugs, 2⅞ inches; screw spacings $1\frac{15}{16}$ inches

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
PW	B	10	100	28	**$0.14**

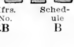
CONCEALED BASE



Outside diameter 2¾ inches; screw spacings, 1⅛ inches and $2\frac{5}{16}$ inches Will also fit type No. 500 Adaptibox.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
PZ	B	10	100	46	**$0.15**

WOOD MOLDING BASE



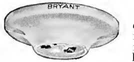
Base measures 2⅛ x 1⅞ inches
Screw spacings 2 inches

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
RB	B	10	100	31	**$0.15**

BRYANT INTERCHANGEABLE PORCELAIN LINE

N. E. C. Standard

3¼ INCH BOX BASE



Outside diameter, 3⅝ inches. Screw spacings, 2¼ inches. Machine screws furnished for mounting on box.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
RL	B	10	100	54	**$0.30**

4 INCH BOX BASE

Outside diameter $4\frac{7}{16}$ inches. Screw spacings 3½ inches.
Machine screws furnished for mounting on box.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std Pkg.	Price Each
RM	B	5	100	83	**$0.40**

CAPS—N. E. C. Standard

Standard finish of brass caps is brush brass.

PENDENT CAPS

No. PT

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std Pkg.	Price Each
	$\frac{13}{32}$ Inch Cord Hole				
PT	B	10	250	31	**$0.10**
	½ Inch Cord Hole				
RT	B	10	250	39	**.10**

FEMALE CAPS

⅛ Inch Brass

Mfrs. No.	Schedule	Carton	Std Pkg.	Wt. Lbs. Std. Pkg.	Price Each
PA	B	10	100	17	**$0.20**

¼ Inch Brass

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
PB	B	10	100	17	**$0.30**

⅜ Inch Brass

Mfrs. No.	Schedule	Carton	Std. Pkg	Wt. Lbs. Std. Pkg.	Price Each
PC	B	10	100	17	**$0.24**

⅜ Inch Aluminum

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
PE	B	10	100	17	**$0.40**

½ Inch Aluminum

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
PD	B	10	100	17	**$0.42**
Brass Cap					**.27**

No. PP

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
	⅜ Inch Brass Angle				
PP	B	10	100	27	**$0.50**
	⅜ Inch Aluminum Angle				
PF	B	10	100	20	**.65**

½ Inch Aluminum Angle

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
RW	B	25	100	22	**$0.75**
Brass Angle Cap					**.60**

BRYANT OUTLET BOX RECEPTACLES

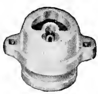
N. E. C. Standard

660 Watts—600 Volts

Fitted with 6 inches No. 14 B. & S stranded rubber-covered wire. Longer wires on special order. Extra charge, **$0.09** list per foot (4½ cents each conductor). Hole required is $1\frac{11}{16}$ inches; diameter over lugs, 2⅝ inches; depth, $1\frac{11}{16}$ inches. Holes for supporting screws spaced 2⅛ inches. Can be equipped with lamp grip.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
59107	B	10	100	45	**$0.30**

660 Watts—250 Volts

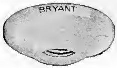


Hole required is $1\frac{11}{16}$ inches; diameter over lugs, 2⅝ inches; depth, $1\frac{11}{16}$ inches. Holes for supporting screws spaced 2⅛ inches. Has loop terminal plates to which conductors may be hooked, soldered and waxed in. Can be equipped with lamp grip.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt Lbs. Std.Pkg.	Price Each
4074	B	10	100	42	**$0.25**

FOR 3¼-INCH OUTLET BOXES

660 Watts—250 Volts



No. 4227

Outside diameter 3½ inches. Holes for supporting screws spaced 2¾ inches on centers. Emergency shade holders may be attached. No. 62357 can be equipped with lamp grip. Machine screws furnished for mounting on box.

With Groove for Weatherproof Shade Holders

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
4227	B	5	100	78	**$0.40**
		Without Groove			
62357	B	5	100	83	**.35**

FOR 4-INCH OUTLET BOXES

660 Watts—250 Volts

Outside diameter, 4½ inches. Holes for supporting screws spaced 3½ inches on centers. Emergency shade holders may be attached. Machine screws furnished for mounting on box.

No. 4064

With Groove for Weatherproof Shade Holders

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
4228	B	5	100	108	**$0.50**
		Without Groove			
4064	B	5	100	112	**.45**

BRYANT OUTLET BOX RECEPTACLES

N. E. C. Standard

FOR 3¼-INCH OUTLET BOXES

660 Watts—600 Volts
With Flat Covers

Outside diameter, 3½ inches. Holes spaced 2¾ inches on centers. Machine screws furnished for mounting on box.

Mfrs. No	Schedule	Description	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
4110	B	Black Japanned	1	100	75	**$0.40**
4111	B	Sherardized	1	100	75	**.45**

FOR 4-INCH OUTLET BOXES

660 Watts—600 Volts
With Raised Covers

Outside diameter, 4⅛ inches; holes spaced 3½ inches on centers. Machine screws furnished for mounting on box.

Mfrs. No.	Schedule	Description	Carton	Std. Pkg.	Wt.Lbs. Std Pkg.	Price Each
4113	B	Black Japanned	1	100	96	**$0.48**
4114	B	Sherardized	1	100	98	**.52**

Note: Above receptacles fitted with 6 inches No. 14 B.&S. stranded rubber-covered wire. Longer wires on special order. Extra charge, **$0.09** list per foot (4½ cents each conductor).

Emergency shade holders may be attached only when used on not over 250 volts.

CONCEALED RECEPTACLES

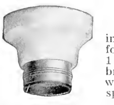
Outside diameter base, 2⅜ inches; height, $1\frac{15}{16}$ inches. Holes for supporting screws are spaced 1⅝ inches on centers.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
4000	B	10	250	101	**$0.25**

With Groove for Weatherproof Shade Holders

Outside diameter base, 2⅜ inches; height, $1\frac{13}{16}$ inches. Holes for supporting screws spaced 1⅝ inches on centers.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
4001	B	10	250	103	**$0.30**



For Uno and Other Standard Shade Holders

Outside diameter base, $2\frac{5}{16}$ inches; height, $1\frac{13}{16}$ inches. Holes for supporting screws spaced 1⅝ inches on centers. Brush brass ring will be furnished when no finish is specified. For special finishes see another page.

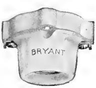
Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
4002	B	10	250	100	**$0.35**

Note: Emergency shade holders may be attached to all above numbers, except No. 50744.

BRYANT CLEAT RECEPTACLES

N. E. C. Standard

660 Watts—250 Volts



Diameter main base, $2\frac{11}{32}$ inches; diameter over lugs, $2\frac{7}{8}$ inches; height, $1\frac{21}{32}$ inches. Holes for supporting screws spaced $2\frac{5}{16}$ inches on centers.

Mfrs. No.	Sched-ule	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
9402	B	10	250	105	**$0.17**

For Weatherproof Shade Holders

Same dimensions and general description as No. 9402.

Mfrs. No.	Sched-ule	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
4013	B	10	250	100	**$0.22**

For Uno and Other Standard Shade Holders

Diameter main base, $2\frac{11}{32}$ inches; diameter over lugs, $2\frac{7}{8}$ inches; height, $1\frac{5}{8}$ inches. Holes for supporting screws spaced $2\frac{5}{16}$ inches on centers. Brush brass ring will be supplied when no finish is specified.

Mfrs. No.	Sched-ule	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg	Price Each
9403	B	10	250	91	**$0.27**

Diameter base, $2\frac{3}{8}$ inches; height, $1\frac{23}{32}$ inches. Holes for supporting screws spaced $1\frac{7}{8}$ inches on centers.

Mfrs. No.	Sched-ule	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
28795	B	10	250	93	**$0.18**

No. 9171 and No. 50757

Nos. 9171, 50757 not N. E. C. S. Base, $1\frac{15}{16}$ in.; height, $1\frac{1}{2}$ in. Supported by one screw.

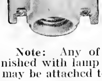
Mfrs. No.	Sched-ule	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
9171	B	10	500	134	**$0.12**
	Pure Copper Metal Parts				
50757	B	10	250	68	**.25**

Pony Type

Diameter main base, $1\frac{7}{8}$ inches; diameter over lugs, $2\frac{7}{16}$ inches; height, $1\frac{23}{32}$ inches. Holes for supporting screws spaced $1\frac{31}{32}$ inches on centers.

Mfrs. No.	Sched-ule	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
50715	B	10	250	78	**$0.12**

For Damp Places



Diameter over lugs, $2\frac{21}{32}$ inches; height, $1\frac{19}{32}$ inches. Raises wires 1 inch from surface. Holes for supporting screws spaced 2 inches on centers.

Mfrs. No.	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
59275	10	250	110	**$0.25**

Note: Any of the above devices can be furnished with lamp grip. Emergency shade holders may be attached to all numbers.

BRYANT OUTLET BOX AND METAL SIGN RECEPTACLES

N. E. C. Standard

No. 61988

Deep receptacles with shallow ($\frac{7}{16}$-inch) ring. Diameter of hole required is $1\frac{1}{2}$ inches; diameter of receptacle $1\frac{3}{4}$ inches; diameter of rings, $1\frac{13}{16}$ inches.

No. 4099

Mfrs. No.	Sched-ule	Separa-tion In.	Depth of Back In	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
	With Binding Screws						
61988	B	1	$1\frac{1}{4}$	10	250	87	**$0.20**
	With Binding Screws—Covered						
4099	B	1	$1\frac{7}{8}$	10	250	111	**.25**
	With Loop Terminals						
4036	B	$1\frac{3}{32}$	$1\frac{3}{32}$	10	250	75	**.20**
	With 6-Inch No. 14 B&S Stranded Wires						
4035	B	$1\frac{3}{32}$	$1\frac{3}{32}$	10	250	87	**.28**
	Shallow Ring						
....	B	......	......	25	250	28	**.06**

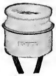
No. 59108

No. 4109

No. 4132

Shallow receptacles with deep ($\frac{9}{16}$-inch) ring.

Mfrs. No.	Sched-ule	Separa-tion In.	Depth of Back In	Car-ton	Std. Pkg.	Wt.Lbs. Std Pkg.	Price Each
	With Binding Screws						
59108	B	$\frac{5}{8}$	$\frac{13}{16}$	10	250	63	**$0.20**
	With Binding Screws—Covered						
4109	B	$\frac{5}{8}$	$1\frac{7}{16}$	10	250	90	**.25**
	With Loop Terminals						
4132	B	$\frac{27}{32}$	$\frac{27}{32}$	10	250	65	**.20**
	With 6-Inch No. 14 B&S Stranded Wires						
4003	B	$\frac{27}{32}$	$\frac{27}{32}$	10	250	82	**.28**
	Deep Ring						
....	B	----	......	25	250	30	**.08**



No. 4135

With deep ($\frac{9}{16}$-inch) screw ring having groove for Weatherproof shade holders Nos. 628 and 629 and recess for Emergency shade holders.

No. 4133

Mfrs. No.	Sched-ule	Separa-tion In.	Depth of Back In.	Car-ton	Std. Pkg.	Wt Lbs. Std Pkg.	Price Each
	With Binding Screws						
4133	B	$\frac{5}{8}$	$\frac{13}{16}$	10	250	58	**$0.25**
	With Binding Screws—Covered						
4134	B	$\frac{5}{8}$	$1\frac{7}{16}$	10	250	90	**.30**
	With Loop Terminals						
4136	B	$\frac{27}{32}$	$\frac{27}{32}$	10	250	60	**.25**
	With 6-Inch No. 14 B&S Stranded Wires						
4135	B	$\frac{27}{32}$	$\frac{27}{32}$	10	250	80	**.33**
	Shade Holder Ring						
....	B	----	......	25	100	10	**.10**

Note: The hole required for above receptacles is $1\frac{1}{2}$ inches; diameter of receptacles $1\frac{3}{4}$ inches; diameter of rings $1\frac{13}{16}$ inches.

Nos. 4099, 4109 and 4134 are provided with a porcelain button which covers live terminals.

Shade holders Nos. 521 and 522 may be attached to the above receptacles.

BRYANT DECORATIVE PULL CHAINS AND TASSELS

Tassels Only, Unfinished

All tassels are equipped with sleeve No. F8168 for making connection.

Mfrs. No.	Schedule	L.In. Tassel	Carton	Std. Pkg.	Price Each
T1	H	1	10	100	**$0.10**
T1½	H	1½	10	100	**.12**
T2	H	2	10	100	**.15**
T2½	H	2½	10	100	**.17**

All tassels made of No. 3 size chain only.

No. 3 (Candelabra Base Socket Size) Chains with Tassels and No. 510 Splicing Link, Unfinished

3T1	H	1	10	100	**.15**
371½	H	1½	10	100	**.17**
3T2	H	2	10	100	**.20**
3T2½	H	2½	10	100	**.22**

No. 6 (Medium Base Socket Size) Chains with Tassels and No. 510 Splicing Link, Unfinished

6T1	H	1	10	100	**.15**
6T1½	H	1½	10	100	**.17**
6T2	H	2	10	100	**.20**
6T2½	H	2½	10	100	**.22**

No. 3 (Candelabra Base Socket Size) Chains with No. 516 Snap Lock Ball and No. 510 Splicing Link, Unfinished

3B	H	......	10	100	**.15**

No. 6 (Medium Base Socket Size) Chains with No. 512 Snap Lock Ball and No. 510 Splicing Link, Unfinished

6B	H	......	10	100	**.15**

Longer Chains

Additional Chain, No. 3 Size, Unlinished, Per Foot........................**$0.05**

Additional Chain, No. 6 Size, Unlinished, Per Foot........................ **.05**

Finishes for Decorative Pull Chains

Chains can be supplied in a variety of linishes to match lixtures or the color scheme of shades or decorations. The colors available in addition to brush brass are divided into groups as follows:

Special One-Color Finishes—Coral, Jade, Light Blue, Lavender, Mahognay, Glossy Black.

Iridescent Finishes—Pink, Light Green, Blue, Lavender, Red, Dark Green.

Mottled Flat Finishes—Pink, Light Green, Blue, Lavender, Red, Dark Green.

Silver Finishes—Pearl Silver, Butler's Green, Satin Silver.

For list prices of chains and tassels finished in colors as listed, add thel ist prices of the unlinished chains and tassels to list prices of finishes below:

Brush Brass Add to List	Special One-Color Finishes Add to List	Iridescent Finishes Add to List	Mottled Flat Finishes Add to List	Silver Finishes Add to List
Tassels Only, Any Regular Length				
$0.08	**$0.15**	**$0.10**	**$0.15**	**$0.09**
Chains, Regular Length, Either Size, with Any Tassels				
.09	**.19**	**.13**	**.19**	**.12**
Chains, Regular Length, Either Size, with Pendent Balls				
.01	**.04**	**.03**	**.04**	**.03**
Extra Chain, Either Size, Per Foot				
.01	**.04**	**.03**	**.04**	**.03**

Carton consists of 10 identical pieces of one number, one length and one linish. Standard package is 100 pieces and may consist of an assortment of unbroken cartons.

Carton of chains only is 100 feet, one size and one finish.

Standard package of chains only is 1,000 feet, one size and one finish.

BRYANT SOCKETS FOR DECORATIVE LIGHTING

N. E. C. Standard

660 Watts—250 Volts

PORCELAIN—NOT WIRED

These sockets will be furnished with stranded single braid rubber-covered wire as listed below.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg	Price Each
4034	B	10	250	70	**$0.20**

MICA—NOT WIRED

These sockets will be furnished with stranded single braid rubber-covered wire as listed below.

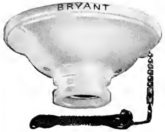
Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
4041	B	10	250	60	**$0.25**

PORCELAIN PULL RECEPTACLES

N. E. C. Standard

PORCELAIN PULL OUTLET RECEPTACLE WITH SHADEHOLDER GROOVE

250 Watts, 250 Volts



Diameter of base $4\frac{21}{32}$ inches. Height $2\frac{5}{32}$ inches. There are four slots for supporting screws arranged radially from center and spaced to take screws placed from 2¾ to 3½ inches on radial centers. The distance between centers of adjacent slots is from 1⅞ to 2½ inches.

This receptacle can be mounted on metal, tiled or concrete surfaces in addition to standard 3¼ inch and 4 inch outlet boxes.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb Std.Pkg.	Price Each
***4275**	B	1	50	76	**$1.20**

Regularly fitted with nickel plated chain but will be furnished with brush brass chain at no extra charge. For all other electroplated finishes, except silver and gold, add **$0.02**. Can be fitted with No. 513 chain insulator at an addition to list of **$0.08**. Machine screws are furnished for mounting on box. Emergency shadeholders Nos. 443, 444 and 445 may be attached when not used on over 250 volts. Weatherproof shadeholders Nos. 628 and 629 may be attached.

LEVOLIER FIXTURE SWITCHES

6A—125V, 3A—250V

No. 61 furnished with large washer for conduit boxes; small nut for lixtures. Standard linish plain brass. Furnished with 6 ft. linen cord and ball. For use on straight edge canopies, ceiling fans, etc. No. 61S has plain lever. No chain or ball. For brackets and electrical appliances.

Mfrs. No	Stem, In. Dia.	Stem, In. Lgth.	Carton	Std. Pkg.	Wt.Lbs Std.Pkg	Price Each
61	$\frac{7}{16}$	$\frac{3}{16}$	10	100	18	**$0.55**
61S	$\frac{7}{16}$	$\frac{3}{16}$	10	100	15	**.55**
62	$\frac{7}{16}$	⅜	10	100	16	**.60**
63	$\frac{7}{16}$	¾	10	100	17	**.60**

BRYANT WEATHERPROOF SOCKETS

N. E. C. Standard
660 Watts—600 Volts

Fitted with 6 inches No. 14 B. & S. stranded rubber-covered wire. Sockets with longer wire furnished on special order. Extra charge, **$0.09** list per foot (4½ cents each conductor).

Can be furnished on special order with 6-inch leads of No. 14 B. & S. slow-burning wire at an addition to list of **$0.01½** per socket or receptacle; and with leads longer than 6 inches at extra charge of **$0.18** list per foot (9 cents each conductor).

PORCELAIN

Main diameter, 1½ inches; flange diameter, 1⅝ inches; length porcelain, 2 inches. Can be furnished with lamp grip. Emergency shade holders may be attached when used on not over 250 volts.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg	Price Each
399	B	10	250	77	**$0.16**

With groove for Weatherproof shade holder. Main diameter, 1½ inches; flange diameter, 1⅝ inches; length porcelain, 2 inches. Can be furnished with lamp grip. Emergency shade holders may be attached when used on not over 250 volts.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs Std.Pkg.	Price Each
9366	B	10	250	86	**$0.18**

BRAGDON SOCKET

With Groove for Weatherproof Shade Holder

Extension skirt carries the drip away from lamp and socket. Method of wiring removes strain from wire connections and places it on the porcelain. Extra hole in porcelain at top allows for independent suspension. Can be furnished with lamp grip. Can also be supplied with Emergency shade holders only when used on not over 250 volts.

Main diameter, 1⅝ inches; diameter of skirt, 2 11/16 inches; length, 3 inches.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
50997	B	10	250	163	**$0.50**

COMPOSITION

Provided with groove for Weatherproof shade holder. Main diameter tapers from 1 7/16 inches to 1 9/16 inches; flange diameter, 1⅝ inches; length of composition, 2 3/16 inches.

Composition

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs Std.Pkg.	Price Each
60666	B	10	250	73	**$0.20**

BRYANT WEATHERPROOF SOCKETS

N. E. C. Standard
660 Watts—600 Volts

COMPOSITION—PONY SIZE

With groove for Weatherproof shade holder. Main diameter, 1 9/16 inches; flange diameter 1⅝ inches; length 2 inches. Fitted with 6 inches No. 14 B. & S. stranded rubber-covered wire. Longer wires furnished on special order.

Mfrs No	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
43310	B	10	250	64	**$0.18**

COMPOSITION—BRACKET TYPE

660 Watts—250 Volts

With grooves for Weatherproof shade holder. Main diameter, 1½ inches; flange, 1⅝ inches; length composition, 1⅞ inches. Fitted with 6 inches No. 18 B. & S. solid rubber-covered fixture wire. Sockets with longer wires furnished on special order. Extra charge, **$0.09** list per foot (4½ cents each conductor).

Wires Inside of Pipe

Mfrs. No	Schedule	Size In	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
43311	B	⅛	10	100	33	**$0.60**
43312	B	⅜	10	100	33	**.60**

660 Watts—600 Volts

Same as above except wires are outside of pipe and sockets fitted with No. 14 B. & S. stranded rubber-covered wire. Sockets with longer wire furnished on special order. Extra charge, **$0.09** list per foot (4½ cents each conductor). Furnished with slow burning wire at an addition to list of **$0.01** per socket.

Wires Outside of Pipe

Mfrs. No	Schedule	Size In.	Carton	Std. Pkg.	Wt.Lbs. Std Pkg.	Price Each
43313	B	⅛	10	100	33	**$0.60**
43314	B	⅜	10	100	33	**.60**

PORCELAIN—BRACKET TYPE

With Groove for Weatherproof Shade Holder
660 Watts—250 Volts

Diameter, 1⅝ inches; length, 2 7/16 inches. Cap is a brass stamping, brush brass finish, and fitted with steel set screw. Fitted with 6 inches No. 18 B. & S. solid rubber-covered fixture wire. Sockets with longer wires furnished on special order. Extra charge **$0.09** list per foot (4½ cents each conductor). Emergency shade holders may be attached to these sockets. Can be equipped with lamp grip.

Wires Inside of Pipe

Mfrs. No	Schedule	Size In.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
9448	B	⅛	10	100	43	**$0.60**
9496	B	⅜	10	100	43	**.60**

BRYANT SOCKETS FOR MOGUL BASE LAMPS

N. E. C. Standard

PORCELAIN KEYLESS SOCKET BODIES

1500 Watts—600 Volts

The assembling screws of mogul sockets are waxed with compound that will not soften under heat.

Main diameter $2\frac{1}{4}$ inches; flange diameter $2\frac{1}{2}$ inches; length $2\frac{1}{2}$ inches; screw spacings $1\frac{13}{32}$ inches. Can be equipped with lamp grip at an addition of **$0.05** to list price.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
4062	B	5	50	43	**$0.55**

Two Piece

Main diameter $2\frac{3}{8}$ inches; flange diameter $2\frac{9}{16}$ inches; length 3 inches; screw spacings $1\frac{5}{8}$ inches. Can be equipped with lamp grip at an addition to list of **$0.05.**

Assembling screws are waxed with compound that will not soften under heat.

Mfrs. No.	Schedule	Carton	Std. Pkg	Wt.Lbs. Std Pkg.	Price Each
4077	B	5	50	56	**$0.70**

With 15-Inch Leads

This socket body will be supplied with No. 14 B. & S. stranded rubber-covered single braid wire longer than 15 inches on special order. Extra charge **$0.09** list per foot ($4\frac{1}{2}$ cents each conductor). With No. 14 B. & S. slow-burning wire not longer than 15 inches at an addition to list price of **$0.23** per socket body, and with longer than 15 inches at an extra charge of **$0.18** list per foot (9 cents each conductor).

Can be equipped with lamp grip at an addition to list of **$0.05**. Diameter, $2\frac{3}{32}$ inches; length, $2\frac{1}{2}$ inches; screw spacings, $1\frac{13}{32}$ inches.

Mfrs. No	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
4081	B	5	50	45	**$0.70**

With Loop Terminals

Diameter, $2\frac{3}{32}$ inches; length, $2\frac{1}{2}$ inches; screw spacings, $1\frac{13}{32}$ inches. Can be equipped with lamp grip at an addition to list of **$0.05**.

Mfrs. No	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
4088	5	50	40	**$0.55**

With Binding Screws

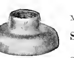
Diameter, $2\frac{3}{32}$ inches; length, $2\frac{1}{2}$ inches; screw spacings, $1\frac{13}{32}$ inches.

Mfrs. No	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
4123	5	50	40	**$0.55**

BRYANT SOCKETS FOR MOGUL BASE LAMPS

N. E. C. Standard

ALUMINUM CAPS



Mfrs. No.	Schedule	Carton	Std Pkg.	Wt Lb. Std Pkg.	Price Each
3/8-Inch Female					
SA	B	10	50	6	**$0.30**
1/2-Inch Female					
SB	B	10	50	6	**.30**

CAST IRON YOKES

Mfrs. No.	Schedule	Carton	Std Pkg	Wt.Lb. Std Pkg.	Price Each
3/8-Inch Female					
SD	B	10	50	22	**$0.15**
1/2-Inch Female					
SE	B	10	50	22	**.15**

BRASS SHELL SOCKETS

N. E. C. Standard

1500 Watts, 600 Volts

Brass shell sockets have asbestos shell and cap linings. Standard finish brush brass which will be shipped when finish is not specified. Can be equipped with lamp grip at an addition to list of **$0.05** each.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std Pkg.	Price Each
3/8-Inch Cap					
4021	B	10	50	40	**$1.50**
1/2-Inch Cap					
4022	B	10	50	40	**1.50**

Diameter is 2 inches; length $3\frac{3}{4}$ inches.

BRYANT RECEPTACLES FOR MOGUL BASE LAMPS

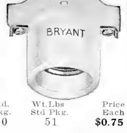
N. E. C. Standard

PORCELAIN CLEAT RECEPTACLE

1500 Watts—250 Volts

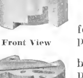
Holes for supporting screws are spaced $2\frac{7}{8}$ inches on centers. Diameter over lugs $3\frac{1}{2}$ inches. Diameter of neck $2\frac{1}{4}$ inches. Diameter of main part of base is $2\frac{5}{8}$ inches. Height $2\frac{5}{8}$ inches.

Can be equipped with lamp grip at an addition to list price of **$0.05**.

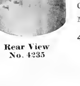


Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs Std Pkg.	Price Each
4073	B	10	50	51	**$0.75**

BRYANT REFLECTOR SOCKET



Front View



Rear View No. 4235

MEDIUM BASE

N. E. C. Standard

660 Watts—250 Volts

Will be equipped with lamp grip feature described on a preceding page at an advance of **$0.05** list.

Socket is $2\frac{1}{4}$ inches in diameter by $1\frac{9}{16}$ inches deep. Hole for supporting screws are $\frac{3}{16}$ inch diameter and are spaced $1\frac{27}{32}$ inches on centers.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
4235	B	10	100	48	**$0.30**

BRYANT SOCKETS FOR MINIATURE AND CANDELABRA BASE LAMPS

N. E. C. Standard

75 Watts—125 Volts

Standard finish on brass shell miniature and candelabra sockets is brush brass, which will be shipped when finish is not specified.

KEY SOCKETS

No. 434

With New Wrinkle style shell fastening. Can be furnished with metal keys and to take special metal key. Single-pole mechanisms.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt Lbs Std Pkg.	Price Each
Miniature—⅛-Inch Cap					
433	H	25	100	12	**$0.39**
Candelabra—⅛-Inch Cap					
434	H	25	100	12	**.39**

PULL TYPE

No. 386

With New Wrinkle style shell fastening. Standard length of chain is 4 inches. Can be furnished with extension chain guides at slight additional charge.

Single-pole mechanisms.

Can be furnished with small undark luminous pendant at **$0.25** extra.

Mfrs. No.	Schedule	Carton	Std Pkg.	Wt.Lbs. Std.Pkg.	Price Each
Miniature—⅛-Inch Cap					
385	H	10	50	6	**$0.84**
Candelabra—⅛-Inch Cap					
386	H	10	50	6	**.84**

KEYLESS

With Threaded Shell Fastening

No. 321

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
Miniature—⅛-Inch Cap					
320	H	50	100	8	**$0.32**
Candelabra—⅛-Inch Cap					
321	H	50	100	8	**.32**

KEYLESS

With Two-Point Shell Fastening

No. 471

Mfrs. No.	Schedule	Carton	Std. Pkg	Wt.Lbs. Std.Pkg.	Price Each
Miniature—⅛-Inch Cap					
470	H	50	100	7	**$0.32**
Candelabra—⅛-Inch Cap					
471	H	50	100	7	**.32**

PORCELAIN DECORATIVE

Weatherproof

No. 323

Made in green glazed porcelain. Each socket fitted with 5 inches No. 18 B. & S. green braid, stranded rubber-covered wire. Sockets with longer wires furnished on special order. Extra charge, **$0.09** list per foot (4½ cents each conductor).

Miniature

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
322	H	25	100	6	**$0.16**

Candelabra

Mfrs. No	Schedule	Carton	Std Pkg	Wt.Lbs. Std.Pkg.	Price Each
323	H	25	100	6	**$0.16**

BRYANT SOCKETS FOR MINIATURE AND CANDELABRA BASE SOCKETS

N. E. C. Standard

75 Watts—125 Volts

PORCELAIN KEYLESS SOCKETS

Supporting studs are 5/16 incn outside diameter, 27 threads per inch.

Mfrs. No	Schedule	Carton	Std. Pkg.	Wt Lbs. Std.Pkg.	Price Each
Miniature					
327	H	50	100	5	**$0.21**
Candelabra					
328	H	50	100	5	**.21**

Bushings are threaded for ⅛ inch iron pipe, .405 inch outside diameter, 27 threads per inch.

Mfrs. No.	Schedule	Carton	Std Pkg.	Wt Lbs. Std.Pkg.	Price Each
Miniature					
346	H	50	100	5	**$0.21**
Candelabra					
347	H	50	100	5	**.21**

Outside diameter of porcelain is 11/16 inches; length of porcelain, 1¼ inches; length over all, 1 7/16 inches.

BRYANT RECEPTACLES FOR MINIATURE AND CANDELABRA BASE LAMPS

No. 367

75 Watts—125 Volts

CLEAT RECEPTACLES

White Porcelain Bases Except No. 612

N. E. C. Standard

Outside diameter base 1 7/16 inches; thickness of base ½ inch; height 1 9/32 inches. Holes for supporting screws spaced 1 1/16 inches on centers.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt Lbs. Std Pkg.	Price Each
Miniature					
366	H	25	100	12	**$0.12**
Candelabra					
367	H	25	100	13	**.12**

Miniature

No. 9445

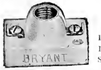
Outside diameter of base 1 3/16 inches; thickness of base 9/32 inch; height 21/32 inch. Holes for supporting screws spaced 15/16 inch on centers.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt Lbs. Std.Pkg.	Price Each
***9445**	H	25	200	11	**$0.09**

Candelabra

Outside diameter of base 1 11/32 inches; thickness of base 5/16 inch; height ⅞ inch. Holes for supporting screws spaced 1 1/16 inches on centers.

Mfrs. No.	Schedule	Carton	Std Pkg.	Wt.Lbs. Std Pkg.	Price Each
***9446**	H	25	200	14	**$0.09**



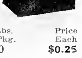
PORCELAIN BASE—OBLONG

Base is 1 9/32 x 1 inches; thickness of base 17/32 inch; height 1 5/16 inch. Holes for supporting screws spaced 1 7/32 x 19/32 inches on centers.

Candelabra

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt Lbs. Std Pkg.	Price Each
***325**	H	25	100	12	**$0.10**

COMPOSITION BASE—OBLONG



Base is 1 9/16 x 1 inches; thickness of base 17/32 inch; height 1 5/16 inches. Holes for supporting screws spaced 1 7/32 x 19/32 inches on centers.

Candelabra

Mfrs. No.	Schedule	Carton	Std. Pkg	Wt.Lbs. Std.Pkg.	Price Each
***612**	H	10	100	10	**$0.25**

*Not approved.

BRYANT CANOPY PULL SWITCHES

HIGH CAPACITY

N. E. C. Standard

6 Amperes, 125 Volts—3 Amperes, 250 Volts

Black composition bodies. Each switch is fitted with 6 inches of No. 16 B. & S. stranded rubber-covered wire. Complete with short chain and 10 feet of black linen cord with composition pendent ball. Can be fitted with 8 inch pull chains with pendent balls and no cords without extra charge. Can be supplied with luminous pendant.

HORIZONTAL

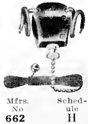
The bracket is a clamp which secures the switch to the pipe. A hole must be drilled or punched in the rim of the canopy for the chain guide.

Mfrs No	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
655	H	10	100	27	**$0.75**

ANGLE TYPE

The bracket is intended for support between the fixture stud and the joint or hickey of the fixture. A hole must be punched in the rim or bell of the canopy for the chain guide.

Mfrs. No	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
656	H	10	100	35	**$0.75**



BRACKET TYPE

Bracket has threaded chain guide with knurled nut. Punch hole in rim of canopy, insert chain guide from inside and secure by screwing on nut from outside. Canopy must be rigid when this switch is used.

Mfrs. No	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
662	H	10	100	29	**$0.75**

VERTICAL

The bracket is a clamp which secures the switch to the pipe. A hole must be punched in the bell of the canopy for the chain guide.

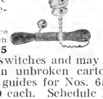
Mfrs. No	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std Pkg.	Price Each
663	H	10	100	30	**$0.75**

WITHOUT BRACKET

Consists of mechanism and cord only.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
665	H	10	100	28	**$0.65**

ANGLE BRACKET



Has an angle bracket for use in flat pans of indirect and semi-indirect fixtures. Chain guide is thrust through a hole in the pan and knurled nut secures switch in place.

Mfrs. No	Schedule	Carton	Std Pkg.	Pkg. Wt.	Price Each
666	H	10	100	36	**$0.75**

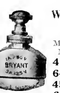
A standard package is 100 switches and may be an assortment of switches in unbroken cartons of 10 each. Separable chain guides for Nos. 655, 656, 363 and 665. List **$0.10** each. Schedule H2 standard package 100, carton 50.

BRYANT CANOPY SWITCHES

N. E. C. Standard

3 Amperes, 125 Volts—1 Ampere, 250 Volts

The standard finish is brush brass, which will be shipped when finish is not specified. Each switch is fitted with 6 inches of No. 18 B. & S. stranded rubber-covered fixture wire. Longer wires will be furnished on special order. Add to list price, per foot, **$0.09** (4½ cents each conductor). For switches with wire leads omitted deduct from list price **$0.02.** Stems are ⅜ inch outside diameter, 27 threads per inch, fitted with two lock nuts, $\frac{9}{16}$ inch outside diameter; the outer one $\frac{7}{64}$ inch thick, the inner one $\frac{3}{64}$ inch thick.



No. 452

WITH BINDING SCREW TERMINALS

Schedule H

Mfrs. No.	Lgth. Stem In.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
451	$\frac{3}{16}$	10	100	8	**$0.60**
642	$\frac{5}{16}$	10	100	9	**.65**
452	$\frac{7}{16}$	10	100	9	**.65**
643	¾	10	100	10	**.69**
644	1	10	100	11	**.70**

WITH WIRE LEADS ENTERING BOTTOM

Schedule H

Mfrs. No	Lgth. Stem In.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
491	$\frac{3}{16}$	10	100	10	**$0.60**
645	$\frac{5}{16}$	10	100	11	**.65**
492	$\frac{7}{16}$	10	100	11	**.65**
646	¾	10	100	12	**.69**
647	1	10	100	13	**.70**

No. 647

WITH WIRE LEADS ENTERING SIDE

Schedule H

These switches are very thin and require only $\frac{9}{16}$ inch clearance between front of canopy and wall.

No. 681

Mfrs. No.	Lgth. Stem In.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
681	$\frac{3}{16}$	10	100	9	**$0.60**
682	$\frac{5}{16}$	10	100	10	**.65**
683	$\frac{7}{16}$	10	100	11	**.65**
686	¾	10	100	12	**.69**
687	1	10	100	13	**.70**

JUNIOR—WITH WIRE LEADS

½ Ampere, 125 Volts

Schedule H

Cannot be furnished with binding screw terminals, nor with stems other than the two lengths listed.

Mfrs. No	Lgth. Stem In.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
541	$\frac{3}{16}$	10	100	9	**$0.60**
542	$\frac{7}{16}$	10	100	10	**.65**

No. 541

Canopy switches of all numbers may be assorted to make up standard package quantity provided carton quantities are not broken.

No. 681 cannot be furnished with binding screw terminals, nor with stems other than listed.

On special order switches will be furnished with outer lock nut $\frac{7}{32}$ inches thick. To obtain this assembly add B after number. Can also be supplied with both lock nuts ¾ inch in diameter, the outer one ¼ inch thick, the inner one $\frac{3}{64}$ inch thick. To obtain this assembly add C after number. Handle stems are threaded 6x32; length of thread $\frac{3}{16}$ inch. Can be supplied with set screw at addition of **$0.05.**

BRYANT DEVICES

MARINE—RAILWAY—INDUSTRIAL RECEPTACLE AND SWITCH HANDLES

N. E. C. Standard

Cast brass handles for use with key receptacles, switches and other devices. The means of attaching to box or cover is a hexagonal bushing which for lamp receptacles, is threaded ⅜ inch iron pipe sizes; for switches ¾ inch, 27 threads, U. S. Standard.

LAMP RECEPTACLE HANDLE

No. 591

With Stuffing Box, Watertight

Mfrs. No	Schedule	Carton	Std. Pkg.	Wt.Lb Std Pkg.	Price Each
591	M	10	100	17	**$0.42**
		No Stuffing Box, Dust Tight			
592	M	10	100	18	**.35**

SNAP SWITCH HANDLE

No. 589

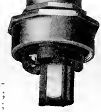
With Stuffing Box, Watertight

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
589	M	10	100	31	**$0.56**
		Without Stuffing Box, Dust Tight			
590	M	10	100	30	**.50**

PLUGS AND RECEPTACLES

N.E.C. Standard

No. 583



No. 585

No. 588

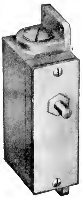
No. 583. Diameter 2⅜ inches; height 1¾ inches; with Nos. 585 or 586 plug inserted 4¼ inches over all; with Nos. 587 or 588, 4¼ inches over all. Diameter of collar, 1⅝ inches; height of collar ½ inch.

Nos. 585 and 588 are for cables not over $\frac{9}{16}$ inch diameter. Nos. 584, 586 and 588 are approved for 12 amperes at all voltages up to maximum of 440 volts. This approval does not permit pulling the plug under load at voltages above 250.

Mfrs. No.	Schedule	Amperes	Volts	Carton	Std. Pkg.	Wt.Lbs Std.Pkg.	Price Each
			Two-Wire Receptacle				
583	M	12	600	10	20	11	**$0.90**
			Three-Wire Receptacle				
584	M	12	440	10	20	11	**1.00**
			Two-Wire Water-Tight Plug				
***585**	M	12	600	10	20	11	**2.20**
			Three-Wire Water-Tight Plug				
***586**	M	12	440	10	20	18	**2.30**
			Two-Wire Non-Water-Tight Plug				
***587**	M	12	600	10	20	18	**1.60**
			Three-Wire Non-Water-Tight Plug				
***588**	M	12	440	10	20	11	**1.70**

*Numbers so marked are equipped with cable clamp.

PERKINS SELF-RESTORING DOOR SWITCHES



N. E. C. Standard

Single Pole—6 Amp., 125 Volts; 3 Amp., 250 Volts

WATERTIGHT

Outlets in top, bottom and rear for ½ inch pipe. Designed to be mounted on the door-stop on the side opposite to where the door is hinged. Measures 5$\frac{5}{16}$ inches high, 2½ inches wide, and 1¼ inches deep.

Mfrs. No	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
		Circuit Closed when Door is Open			
2750	M	1	25	50	**$4.50**
		Circuit Open when Door is Open			
2731	M	1	10	18	**4.50**

BRYANT ATTACHMENT PLUGS

N. E. C. Standard—660 Watts, 250 Volts

SPARTAN—SEPARABLE

No. 700

Made of composition. Cord hole No. 700, $\frac{13}{32}$ inch; No. 701, $\frac{9}{32}$ inch.

Mfrs. No	Schedule	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
700	R	25	250	44	**$0.20**
701	R	25	250	44	**.20**

SPARTANETTE—SEPARABLE

Made of composition. Cord hole elongated $\frac{9}{32}$x⅜ inches.

Mfrs. No	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
699	R	25	500	68	**$0.15**

SPARTAN—SEPARABLE

Made of Bakelite brown composition. Elongated cord hole, 23/62 x $\frac{7}{16}$ inches. Polished nickel exposed metal parts.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
777	R	10	100	20	**$0.25**

BRASS CAP—PORCELAIN BODY

Nos. 1948 and 925

The cap has a double bushing, providing either a $\frac{9}{32}$ inch or $\frac{13}{32}$ inch cord hole. Finish brush brass. For special finishes see another page.

Mfrs. No.	Schedule	Carton	Std Pkg.	Wt.Lb. Std.Pkg.	Price Each
		Fuseless			
1948	H	10	250	48	**$0.22**
		Fusible			
925	H	10	250	48	**.22**

ENAMELED WOOD HANDLE

Attachment plug with $\frac{13}{32}$ inch cord hole.

Fuseless

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
1009	H	10	250	33	**$0.12**

COMPOSITION—WEATHERPROOF

660 Watts, 600 Volts

Each plug fitted with 6 inches of No. 14 B. & S. stranded rubber covered wire. Longer wires on special order. Extra charge, **$0.09** list per foot (4½ cents each conductor).

Mfrs. No.	Schedule	Carton	Std. Pkg.	Std.Pkg. Wt.Lbs.	Each Price
345	H	10	250	57	**$0.22**

THE BRYANT SPARTAN LINE

N. E. C. Standard

STANDARD PLUG CAPS

Any of the caps listed below can be furnished in polarity type at same price. When ordering this type add letter M to number instead of K, as MA, etc., except MS, which has been discontinued

The standard finish on caps is brush brass, which will be shipped when no finish is specified.

For special finishes see another page.

COMPOSITION

10 Amperes, 250 Volts

With 13/32 inch cord hole

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt Lb. Std.Pkg.	Price Each
KA	R	10	250	27	$0.10

With 9/32 inch cord hole

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
KJ	R	10	250	27	$0.10

With elongated cord hole 9/32x3/8 inches

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt Lb Std.Pkg.	Price Each
KT	R	25	500	37	$0.08

COMPOSITION

With 3/8 inch Knostrain bushing

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
KM	R	10	50	8	$0.25
Without Bushing					.20

BRASS COVERED—COMPOSITION

With 3/8 Inch Knostrain Bushing

Mfrs. No.	Schedule	Carton	Std. Pkg	Wt.Lb. Std.Pkg.	Price Each
KN	R	10	50	9	$0.45
Without Bushing					.40

BRASS COVERED—COMPOSITION

With 13/32 inch cord hole

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt Lb. Std.Pkg.	Price Each
KB	R	10	250	28	$0.25

WITH FINGER GRIP

With 13/32 inch cord hole

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt Lb. Std.Pkg.	Price Each
KC	R	10	50	7	$0.35

MOTOR—COMPOSITION

With 13/32 inch cord hole. Base is 1 17/32 inches in diameter and 11/16 inch thick. Screw spacings, 1 inch.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
KG	R	10	50	7	$0.13

MIDGET MOTOR—COMPOSITION

Designed for use with No. 130 Cord Connector Body, see another page. Outside diameter, 1⅛ inches.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
KR	R	10	50	3	$0.11

THE BRYANT SPARTAN LINE

N. E. C. Standard

WALL RECEPTACLES—FLUSH TYPES

10 Amperes, 250 Volts

No. 120

FOR PLATE WITHOUT DOOR

Base measures 2 9/16x1⅝ inches; depth 1⅛ inches. Screw spacings of outside holes 3 9/32 inches and of inside holes 2 13/16 inches. Price does not include plates, which are listed on another page. Machine screws furnished for mounting on box.

Porcelain

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
120	R	10	100	41	$0.30
Composition					
9020	R	10	100	41	.33

FOR PLATE WITH DOOR

For plates with doors. Base measures 2 9/16x1⅝ inches by 1⅛ inches deep. Screw spacings of outside holes 3 9/32 inches and of inside holes 2 13/16 inches. Price does not include plates, which are listed on another page. Machine screws furnished for mounting on box.

No. 124

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
124	R	10	50	26	$0.35

DUPLEX—FOR PLATE WITHOUT DOORS

No. 122

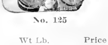
For plates without doors. Each outlet 10 amperes, 250 volts. Base measures 2⅝x 1 11/16 by 1⅛ inches deep. Screw spacings are 3 9/32 inches. Price does not include plates, which are listed on another page. Machine screws furnished for mounting on box. No. 122 has side wiring terminals.

Porcelain

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
122	R	10	50	34	$0.48
Composition					
9022	R	10	50	34	.51

FOR PLATE WITH DOORS

For plates with doors. Each outlet 10 amperes, 250 volts. Base measures 2⅝x1 11/16 by 1⅛ inches deep. Screw spacings are 3 9/32 inches. Price does not include plates, which are listed on another page.



No. 125

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt Lb. Std Pkg.	Price Each
125	R	10	50	34	$0.53

Note: Single and gang plates for Spartan receptacles are listed on another page.

THE BRYANT SPARTAN LINE

N. E. C. Standard

WALL RECEPTACLES—FLUSH TYPE

10 Amperes, 250 Volts

FOR PLATE WITHOUT DOOR

Side Wiring Terminals

Base measures $1\frac{7}{8}$x$1\frac{7}{16}$ inches; depth, $\frac{7}{8}$ inch. Screw spacings of outside holes, $3\frac{9}{32}$ inches, and of inside holes, $2\frac{13}{16}$ inches. Price does not include plates which are listed on another page. Machine screws furnished for mounting on box.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
760	R	10	100	22	**$0.30**

DUPLEX—FOR PLATE WITHOUT DOOR

Side Wiring Terminals

Each outlet 10 amperes, 250 volts. Base measures $2\frac{5}{8}$x$1\frac{3}{8}$ inches; depth, $\frac{27}{32}$ inch. Supporting screw spacings are $3\frac{9}{32}$ inches. Price does not include plates which are listed on another page. Machine screws are furnished for mounting. Side wire terminals.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
762	R	10	50	15	**$0.48**

THE BRYANT SPARTAN LINE

N. E. C. Standard

FLUSH RECEPTACLES WITH ROUND PLATES

10 Amperes, 250 Volts

2¾ INCH PLATE

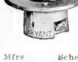


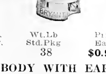
Plate is 2¾ inches in diameter. Body of receptacle is $1\frac{7}{16}$ inches in diameter, $1\frac{3}{8}$ inches deep. Supporting screw holes spaced $1\frac{7}{8}$ inches on centers. Receptacle less plate, **$0.50.**

Mfrs No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
115	R	1	50	24	**$0.85**

FOR 3¼ INCH OUTLET BOXES

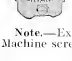
10 Amperes, 250 Volts

Plate is 3⅝ inches in diameter. Body of receptacle is $1\frac{7}{16}$ inches in diameter; $1\frac{3}{8}$ inches deep. Supporting screw holes spaced 2¾ inches on centers. Receptacle less plate, **$0.50.**



Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb Std.Pkg	Price Each
116	R	1	50	38	**$0.95**

PORCELAIN RECEPTACLE BODY WITH EARS



Body of receptacle is $1\frac{7}{16}$ inches in diameter; $1\frac{3}{8}$ inches deep.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
733	R	10	50	13	**$0.40**
	Plate Only				
734	H	10	50	9	**.40**

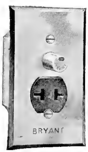
Note.—Except No. 733 finish is brush brass. Machine screws are furnished.

THE BRYANT SPARTAN LINE

N. E. C. Standard

WALL RECEPTACLES—COMBINATION

10 Amperes, 125 Volts—5 Amperes, 250 Volts



No. 117

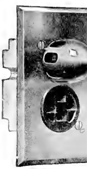
Complete with Type O indicating D.P. switch and receptacle with struck up .060 brass plate. Plate measures $4\frac{1}{2}$x$2\frac{3}{4}$ inches; base $2\frac{5}{8}$x$1\frac{11}{16}$ inches; depth $1\frac{5}{8}$ inches. Screw spacings: outside holes, $3\frac{9}{32}$ inches; inside holes, $2\frac{13}{16}$ inches. Plates are furnished brush brass unless otherwise ordered. Receptacle less plate, **$1.65.** Machine screws furnished for mounting on box.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Pkg. Wt.	Price Each
117	R	1	10	15	**$2.00**
	Plate Only				
OW61	H	1	10	....	**.35**

PILOT TYPE—10 Amperes, 125 Volts

Lamp lights when plug is inserted. Does not have tandem slots. Complete with struck up .060 brass plate. Plate measures $4\frac{1}{2}$x$2\frac{3}{4}$ inches; base, $2\frac{11}{16}$ x$1\frac{11}{16}$ inches; depth, $1\frac{11}{16}$ inches. Screw spacings, $3\frac{9}{32}$ inches. Plates are furnished brush brass unless otherwise ordered. Receptacle less plate, **$1.50.** Machine screws furnished for mounting on box.

Mfrs. No	Sch.	Carton	Std Pkg	Pkg. Wt.	Price Each
121	R	1	10	15	**$2.80**
	Plate Only				
OI61	H	1	10	....	**1.30**



No. 121

BRYANT PLATES FOR SPARTAN FLUSH RECEPTACLES

BRASS PLATES WITHOUT DOORS FOR SINGLE FLUSH RECEPTACLES, SYMBOL F

For Receptacles Nos. 120, 427, 475, 556, 760, 1708 and 9020

Perma finish is a durable colored lacquer or varnish that resembles brush brass. The list price of any flush plate in Perma finish is **$0.04** list per gang less than brush brass.

Standard Finish: Mfrs. No.	Schedule	Price Each	Std. Pkg.	Pkg. Wt.	Perma Finish: Mfrs. No	Schedule	Price Each
One-Gang, Stamped .060							
OF61	H	**$0.18**	100	29	**OF61-P**	H	**$0.14**
One-Gang, Stamped .040							
OF41	H	**.14**	100	23	**OF41-P**	H	**.10**
One-Gang, Solid							
OF11	H	**.34**	100	37	**OF11-P**	H	**.30**
Two-Gang, Solid							
OF12	H	**.68**	50	32	**OF12-P**	H	**.60**
Three-Gang, Solid							
OF13	H	**1.02**	35	29	**OF13-P**	H	**.90**
Four-Gang, Solid							
OF14	H	**1.60**	25	27	**OF14-P**	H	**1.44**

Note.—Symbol F plates, brush brass, standard spacings and dimensions, less than four gangs, list per gang: solid, **$0.34;** .060 inch, **$0.18;** .040 inch, **$0.14.** Four gangs or more, list per gang: solid, **$0.40;** .060 inch, **$0.26;** .040 inch, **$0.22.**

BRYANT PLATES FOR SPARTAN FLUSH RECEPTACLES

N. E. C. Standard

No. OE61

BRASS PLATES WITH DOOR FOR SINGLE FLUSH RECEPTACLES
Symbol E

For Receptacles Nos. 124 and 1708

Perma finish is a durable colored lacquer or varnish that resembles brush brass. The list price of any flush plate in Perma finish is **$0.04** list per gang less than brush brass.

One-Gang, Stamped .060

Standard Finish Mfrs. No.	Sched-ule	Price Each	Std. Pkg.	Pkg. Wt.	Perma Finish Mfrs. No.	Sched-ule	Price Each
OE61	H	**$0.23**	100	32	OE61-P	H	**$0.19**
One-Gang, Stamped .040							
OE41	H	**.19**	100	25	OE41-P	H	**.15**
One-Gang, Solid							
OE11	H	**.39**	100	41	OE11-P	H	**.35**
Two-Gang, Solid							
OE12	H	**.78**	50	35	OE12-P	H	**.70**
Three-Gang, Solid							
OE13	H	**1.17**	35	35	OE13-P	H	**1.05**
Four-Gang, Solid							
OE14	H	**1.80**	25	31	OE14-P	H	**1.64**

BRASS PLATES WITHOUT DOORS FOR DUPLEX FLUSH RECEPTACLES—Symbol V

For Receptacles Nos. 122, 762 and 9022

Perma finish is a durable colored lacquer or varnish that resembles brush brass. The list price of any flush plate in Perma finish is **$0.04** list per gang less than brush brass.

No. OV61

One-Gang, Stamped .060

Standard Finish Mfrs. No.	Sched-ule	Price Each	Std. Pkg.	Pkg. Wt.	Perma Finish Mfrs. No.	Sched-ule	Price Each
OV61	H	**$0.18**	100	29	OV61-P	H	**$0.14**
One-Gang, Stamped .040							
OV41	H	**.14**	100	19	OV41-P	H	**.10**
One-Gang, Solid							
OV11	H	**.34**	100	33	OV11-P	H	**.30**
Two-Gang, Solid							
OV12	H	**.68**	50	50	OV12-P	H	**.60**
Three-Gang, Solid							
OV13	H	**1.02**	35	27	OV13-P	H	**.90**
Four-Gang, Solid							
OV14	H	**1.60**	25	25	OV14-P	H	**1.44**

No. OV211

BRASS PLATE WITH DOORS FOR NO. 125 DUPLEX FLUSH RECEPTACLE—Symbol V2

Dimensions of this plate are 2⅝ inches in height by 4½ inches in width.

Single Solid

Standard Finish Mfrs. No.	Sched-ule	Price Each	Std. Pkg.	Pkg. Wt.	Perma Finish Mfrs. No.	Sched-ule	Price Each
OV211	H	**$0.80**	25	8	OV211-P	H	**$0.76**

Note.—Symbol E plates: solid, **$0.39**; .060 inch, **$0.23**; .040 inch, **$0.19** list per gang in less than four gangs. Four gangs or more, list per gang: solid, **$0.45**; .060 inch, **$0.31**; .040 inch, **$0.27**. Symbol V plates: solid, **$0.34**; .060 inch, **$0.18**; .040 inch, **$0.14** list per gang in less than four gangs. Four gangs or more, list per gang: solid, **$0.40**; .060 inch, **$0.26**; .040 inch, **$0.22**.

BRYANT COMBINATION FLUSH PLATES FOR FLUSH DEVICES

N. E. C. Standard

BRASS PLATES FOR ONE TWO-BUTTON PUSH SWITCH (SYMBOL P) AND ONE FLUSH RECEPTACLE. TWO-GANG .040 INCH STAMPED

No. OPE42

Plates Without Door (Symbol F) for Single Flush Receptacles Nos. 120, 427, 475, 556, 760, 1708 and 9020

A reversible plate and can be turned end for end without affecting the proper operation of the devices which it covers.

Standard Finish Mfrs. No.	Sched-ule	Price Each	Std. Pkg.	Pkg. Wt.	Perma Finish Mfrs. No.	Sched-ule	Price Each
OPF42	H	**$0.38**	10	4	OPF42-P	H	**$0.30**

Plates with Door (Symbol E) for Single Flush Receptacles Nos. 124 and 1708

No. OEP42 has switch on the right. No. OPE42 has switch on the left.

Standard Finish Mfrs. No.	Sched-ule	Price Each	Std. Pkg.	Pkg. Wt.	Perma Finish Mfrs. No.	Sched-ule	Price Each
OEP42	H	**$0.43**	10	4	OEP42-P	H	**$0.35**
OPE42	H	**.43**	10	4	OPE42-P	H	**.35**

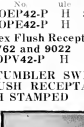
Plates Without Doors for Duplex Flush Receptacles (Symbol V) Nos. 122, 762 and 9022

OPV42	H	**.38**	10	5	OPV42-P	H	**.30**

BRASS PLATES FOR ONE TUMBLER SWITCH (SYMBOL S) AND ONE FLUSH RECEPTACLE TWO-GANG .040 INCH STAMPED

Plates Without Door (Symbol F) for Single Flush Receptacles Nos. 120, 427, 475, 556, 760, 1708 and 9020

A reversible plate and can be turned end for end without affecting the proper operation of the devices which it covers.



No. OSF42

Standard Finish Mfrs. No.	Sched-ule	Price Each	Std. Pkg.	Pkg. Wt.	Perma Finish Mfrs. No.	Sched-ule	Price Each
OSF42	H	$0.38	10	4	OSF42-P	H	$0.30

Plates With Door (Symbol E) for Single Flush Receptacles Nos. 124 and 1708.

No. OES42 has switch on right, No. OSE42 on left.

Standard Finish Mfrs. No.	Sched-ule	Price Each	Std. Pkg.	Pkg. Wt.	Perma Finish Mfrs. No.	Sched-ule	Price Each
OES42	H	**$0.43**	10	5	OES42-P	H	**$0.35**
OSE42	H	**.43**	10	5	OSE42-P	H	**.35**

No. OSV42

Plates Without Doors for Duplex Flush Receptacles (Symbol V) Nos. 122, 762 and 9022

A reversible plate and can be turned end for end without affecting the proper operation of the devices which it covers.

Standard Finish Mfrs. No.	Sched-ule	Price Each	Std. Pkg.	Pkg. Wt.	Perma Finish Mfrs. No.	Sched-ule	Price Each
OSV42	H	**$0.38**	10	5	OSV42-P	H	**$0.30**

BRYANT D. D. FLUSH RECEPTACLES, PLUGS AND PLATES

Schedule H—N. E. C. Standard

D. D. RECEPTACLES

10 Amperes, 250 Volts

Length of cups, 2 9/16 inches. Width, 1 11/16 inches. Depth, 1 9/16 inches. Supporting screw spacings: Outside, 3 9/32 inches; inside, 2 13/16 inches.

Suitable machine screws are furnished for mounting these devices on box.

Nos. 430, OD61, 432

With Porcelain Cup

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
430	H	10	30	15	**$0.50**

With Composition Cup

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
630	H	10	30	15	**$0.55**

Dimensions, screw spacings, etc., are the same as shown above. Suitable machine screws are furnished for mounting on box.

No. 594

No. 616

D. D. PLUGS—COMPOSITION

10 Amperes, 250 Volts

Schedule H

Nos. 494, 594 and 595 can be polarized when so ordered without extra charge. Nos. 432, 539 and 494 have 13/32 inch cord holes. Nos. 594 and 595 are for parallel cord and have holes 3/16 by 9/32 inch.

Mfrs. No.	Description	Wt.Lb. Std.Pkg.	Price Each
494	Without Cover	5	**$0.50**
432	Brass Covered	6	**.60**
539	Polarity, Brass Covered	6	**.60**
594	One Side Outlet Brass Cov.	7	**.60**
595	Two Side Outlets Brass Cov.	7	**.70**
616	Polar. Adapter D. D. to Spartan	8	**.65**

Carton, 10. Standard Package, 30.

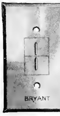
BRASS PLATES FOR D. D. RECEPTACLES

Symbol D

For receptacles Nos. 430 and 630. D plates .040 inch are not made. Symbol D plates, brush brass, standard spacings and dimensions, any number of gangs, price per gang: solid **$0.70**; .060 inch **$0.45.**

One-Gang—Stamped .060 Inch

Mfrs. No.	Schedule	Carton	Std. Pkg.	Price Each
OD61	H	10	11	**$0.45**
	One-Gang—Solid			
OD11	H	10	13	**.70**
	Two-Gang—Solid			
OD12	H	5	10	**1.40**
	Three-Gang—Solid			
OD13	H	5	11	**2.10**
	Four-Gang—Solid			
OD14	H	5	12	**2.80**



No. OD61

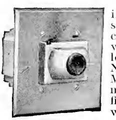
Standard package, sufficient number to accommodate 30 D. D. receptacles.

BRYANT D. D. FLUSH RECEPTACLES, PLUGS AND PLATES

Schedule H—N. E. C. Standard

HIGH CAPACITY

25 Amperes—All Voltages to 250 Volts Maximum



Nos. 446, OZ12, 448

The hole in the plug is 21/32 inch in diameter and is designed for No. 10 portable cable, which should be used when receptacle is to be loaded to its full capacity. Size No. 446, 2 9/16x3½x2½ inches. Machine screws furnished for mounting on box. Standard finish is brush brass, which will be shipped unless finish is specified.

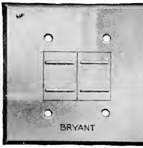
Receptacle—Porcelain Cup

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
446	H	1	10	12	**$1.50**
	Composition Plug—Brass Covered—Polarity				
448	H	10	10	7	**1.50**

Note.—This device is 2½ inches deep, requires a two-gang deep box. There are holes for four supporting screws spaced 3 9/32 inches vertically, and 1 13/16 inches hoizontally.

BRASS FLUSH PLATE

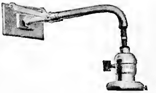
Symbol Z plates, brush brass, solid only for mounting No. 446 receptacles in gangs will be furnished only on special order, at **$2.00** list per receptacle (2 gangs). When so mounted, receptacles will be spaced 3⅝ inches on centers.



Single—Two-Gang—Solid

Mfrs. No.	Schedule	Size, In. Length	Size, In. Width	Carton	Std. Pkg.	Wt. Lb. Std.Pkg.	Price Each
OZ12	H	4½	4 9/16	1	10	7	**$2.00**

D. D. HOTEL SAMPLE ROOM BRACKETS



Nos. 430, 489 and 490

The lamp, socket, cord, bracket, plug and braces can be removed at will. The plate attaches to a No. 430 receptacle. Socket and cord are not included. Length of bracket, 10⅛ inches. Plate is furnished in brush brass finish unless otherwise ordered. Polished brass finish can be had at no extra charge. Special finishes take regular advance. Plate measures 2½x4½ inches.

D. D. Bracket Plate—Solid Brass

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
489	H	10	10	8	**$1.00**
	Plug and Bracket				
490	H	1	10	10	**3.50**

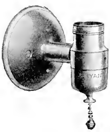
BRYANT ASSEMBLED WALL BRACKETS

N. E. C. Standard

250 Watts—250 Volts

FOR 3¼ INCH BOXES

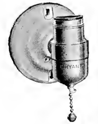
Unit Wall Brackets with Brass Covered Base



Consists of No. 694 base and No. 4237 socket complete ready to wire. Distance from surface of wall to center of socket is 3⅛ inches. Standard finish is brush brass which will be furnished when no finish is specified.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
674	H	1	50	58	**$2.00**
675	H	1	50	97	**2.15**

COMPACT WALL BRACKETS WITH PORCELAIN BASE



Consists of No. 4237 socket attached to No. 772 or 773 base, ready to wire. Distance from surface of wall to center of socket $2\frac{3}{16}$ inches.

Standard finish of socket is brush brass which will be furnished when no finish is specified.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
684	H	1	50	60	**$1.10**
685	H	1	50	82	**1.17**

Machine screws are furnished for mounting this device on box. Can be supplied with permanently attached Undark luminous pendant at an addition to price of **$0.25** each. Can also be furnished with Brylock attachment at additional charge of **$0.27.**

BRYANT WALL BRACKET AND CEILING FIXTURE BASES

N. E. C. Standard

PORCELAIN—⅜ INCH MALE STUDS

For ¾ Inch Boxes

Outside diameter 3½ inches; height 1 inch. Holes for supporting screws spaced 2¾ inches on centers.

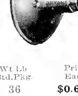
Mfrs. No.	Schedule	Carton	Std Pkg.	Wt.Lb Std Pkg	Price Each
772	H	10	100	66	**$0.24**

For 3¼ and 4 Inch Boxes

Outside diameter 4⅝ inches; height 1 inch. Holes for supporting screws spaced 2¾ and 3½ inches on centers.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
773	H	10	100	110	**$0.31**

For 3¼ Inch Boxes



With ⅜ inch male stud as used for No. 674. Diameter 3⅝ inches. Holes for supporting screws spaced 2¾ inches on centers. Machine screws furnished for mounting this device on box. Brush brass finish, which will be shipped when no finish is specified. For special finishes see a preceding page.

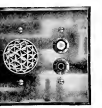
Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt Lb Std.Pkg.	Price Each
694	H	10	50	36	**$0.60**
	For 3¼ and 4 Inch Boxes				
695	H	10	50	60	**.70**

BRYANT BULL'S EYE PLATES

N. E. C. Standard

READY WIRED

10 Amperes, 125 Volts

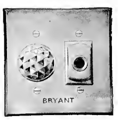


Consists of one-piece porcelain cup $2\frac{9}{16}$ inches long, 3½ inches wide, $1\frac{11}{16}$ inches deep, with eight supporting screw holes spaced $3\frac{9}{32}$ and $2\frac{13}{16}$ inches on centers vertically and $1\frac{13}{16}$ inches on centers horizontally for installation in a standard two-gang outlet box. This cup incorporates a No. 427 receptacle and No. 2520 receptacle which is fitted with a No. 2523 D. P. switch mechanism.

All electrical parts are connected together by brass shunts and the device is ready for connection to line wires and load wires. A solid brass plate No. OPB12 with No. 736 ruby jewel is furnished to cover working parts. Finish of plate is brush brass.

Two Gang—Ready Wired Combination

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
413	H	1	10	25	**$3.55**
413	Without No. OPB12 Plate				**2.01**

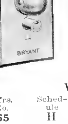


Consists of one-piece porcelain cup $2\frac{9}{16}$ inches long, 3½ inches wide, 1⅞ inches deep, with eight supporting screw holes spaced $3\frac{9}{32}$ and $2\frac{13}{16}$ inches on centers vertically and $1\frac{13}{16}$ inches on centers horizontally for installation in a standard two-gang outlet box. This cup incorporates a No. 427 receptacle and a No. 430 receptacle so connected that when the No. 432 plug furnished is inserted the lamp lights and illuminates the bull's eye. The device is ready for connection to line wires. A solid brass plate No. OBD12 with No. 736 ruby jewel is furnished to cover working parts. Finish of plate is brush brass.

Two Gang—Ready Wired Combination

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt Lb. Std Pkg.	Price Each
514	H	1	10	26	**$3.80**
514	Without No. OBD12 Plate				**1.90**

PILOT—10 Amperes, 125 Volts



Consists of one-piece porcelain cup $2\frac{9}{16}$x$1\frac{11}{16}$x$1\frac{11}{16}$ inches deep; supporting screw holes spaced $3\frac{9}{16}$ and $2\frac{13}{16}$ inches on centers vertically for installation in standard one-gang outlet box. Cup incorporates switch and candelabra base receptacle ready wired in multiple. A No. 618 lamp is fitted in receptacle and the whole covered by an M .060 inch plate. Finish of plate, brush brass.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt Lb. Std Pkg.	Price Each
	With D. P. Push Switch				
465	H	1	10	15	**$3.50**
	With Three Point Push Switch				
495	H	1	10	15	**3.50**
	With D. P. Rotary Lock Switch				
469	H	1	10	15	**4.00**

Price of any above combination without No. OM61 plate **$1.30** less than price given above.

BRYANT FLUSH RECEPTACLES
N. E. C. Standard

SCREW PLUG TYPE—660 Watts, 250 Volts

SINGLE—Porcelain Cup

Length porcelain cup, 2 9/16 inches; width, 1 13/32 inches; depth, 1 11/32 inches. Supporting screw spacings: outside, 3 9/32 inches; inside, 2 13/16 inches.

Mfrs. No	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
1708	H	10	100	35	**$0.21**

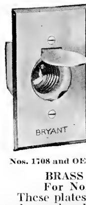
DUPLEX—Porcelain Cup

Length of porcelain cup, 2 13/16 inches; width, 1 11/16 inches; depth, 1 13/32 inches. Supporting screw spacings, 3 9/32 inches.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
546	H	10	30	15	**$0.60**

BRASS PLATES WITH DOOR
For No. 1708 Receptacle

Symbol E



Nos. 1708 and OE61

Mfrs. No	Schedule	Carton	Wt Lb. Std.Pkg.	Price Each
One Gang, Stamped .060 Inch				
OE61	H	20	32	**$0.23**
One Gang, Stamped .040 Inch				
OE41	H	20	25	**.19**
One Gang, Stamped .040 Inch, Perma Finish				
OE41-P	H	20	25	**.15**
One Gang, Solid				
OE11	H	20	41	**.39**

Length, 4½ inches; width, 2¾ inches.

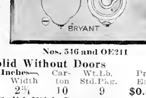
BRASS PLATES WITHOUT DOORS
For No. 1708 Receptacle, Symbol F

These plates are necessary when receptacles are to be used as lamp sockets as door on E plates interferes with lamp.

Mfrs. No.	Schedule	Size, Inches Length	Size, Inches Width	Carton	Wt.Lb. Std.Pkg.	Price Each
One Gang, Stamped .060 Inch						
OF61	H	4½	2¾	20	29	**$0.18**
One Gang, Stamped .040 Inch						
OF41	H	4½	2¾	20	23	**.14**
One Gang, Stamped .040 Inch, Perma Finish						
OF41-P	H	4½	2¾	20	23	**.10**
One Gang, Solid						
OF11	H	4½	2¾	20	37	**.34**

DUPLEX BRASS PLATES
For No. 546 Receptacle, Symbols F2 and E2

Standard finish of plate is brush brass which will be furnished when no finish is specified. For special finishes see following page. Machine screws furnished for mounting on box.



Nos. 546 and OE211

Mfrs. No.	Schedule	Size, Inches Length	Size, Inches Width	Carton	Wt.Lb. Std.Pkg.	Price Each
One Gang, Solid Without Doors						
OF211	H	4½	2¾	10	9	**$0.60**
One Gang, Solid With Doors						
OE211	H	4½	2¾	10	11	**.80**

Standard package, 30 plates of one style. Finish may be assorted.

The standard finish of above plates is brush brass which will be shipped when no finish is specified.

BRYANT BULL'S EYE RECEPTACLES
N. E. C. Standard

BULL'S EYE JEWELS—REMOVABLE

No. 736

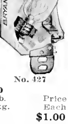
No. 737

No. 736 is for isolated signals. No. 737 for signals in gangs or for continuous service. Both types can be fitted into any plate having a hole 1⅜ inches diameter in material not over ⅛ inch thick. Any F receptacle plate, solid, 1/16 or .040 inch will take these bull's eye jewels.

Mfrs. No	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
Solid Ring					
736	H	10	30	2	**$0.66**
Ventilated Ring					
737	H	10	30	2	**1.16**

FLUSH RECEPTACLES FOR BULL'S EYES
75 Watts

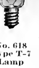
Porcelain cups of receptacles are 2 9/16 inches long, 1 11/16 inches wide and 1⅝ inches deep. Supporting screw spacings: outside, 3 9/32 inches; inside, 2 13/16 inches. No. 427 will also take a form 11 lamp, 2 c.p., clear pear shape bulb, carbon filament, candelabra base, 125 volts. Machine screws furnished for mounting this device on box.



No. 427

Mfrs. No.	Schedule	Carton	Std Pkg.	Wt.Lb. Std.Pkg.	Price Each
With No. 618 125 Volt Lamp					
427	H	10	30	17	**$1.00**
With No. 619, 32 Volt Lamp					
627	H	10	30	17	**1.00**

LAMPS FOR BULL'S EYE RECEPTACLES



No. 618 Type T-7 Lamp

Lamps with candelabra bases are commercially limited to maximum voltage of 125 volts. When bull's eyes are desired for circuits above 125 volts it is necessary to connect two No. 427 receptacles in series in a two-gang box and cover them with a No. OX12 plate. Voltage of two No. 427 receptacles wired in series is 250 volts maximum.

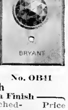
Type T-7, Tubular Bulb, Candelabra Base

Mfrs. No.	Schedule	Volts	Carton	Std Pkg.	Wt.Lbs. Std Pkg.	Price Each
618	H	125	10	30	3	**$0.50**
619	H	32	10	30	3	**.50**

BULL'S EYE PLATES

Unless otherwise specified, ruby jewels will be furnished. Green, clear, amber, opalescent or blue jewels can be furnished on special order without extra charge.

Standard finish brass plates is brush brass.



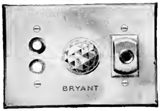
No. OB41

Standard Finish Mfrs. No.	Schedule	Price Each	Wt.Lb. Std.Pkg.	Perma Finish Mfrs. No.	Schedule	Price Each
One Gang, Stamped .040 Inch						
OB41	H	**$0.80**	13	OB41-P	H	**$0.76**
One Gang, Solid						
OB11	H	**1.00**	17	OB11-P	H	**.96**

Carton, 10; standard package, 30.

BRYANT BULL'S EYE COMBINATIONS

N. E. C. Standard



No. OPBD13 with No. 432 Plug

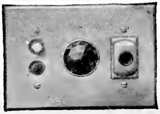
10 Amp., 125 Volts

Combination of one D. P. push button switch, not ready-wired, one bull's eye, one D. D. receptacle with plug and solid plate. Three gang.

Mfrs. No.	Schedule	Description	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
2202	H	Switch	50	10	31	**$0.70**
427	H	Receptacle	30	10	17	**1.00**
430	H	Receptacle	30	10	15	**.50**
432	H	Plug	30	10	6	**.60**
OPBD13	H	Plate	10	2	15	**2.34**
Parts Complete not Assembled						**5.14**

Parts must be ordered separately and wired. If tumbler switch is desired, order No. 2952 switch and No. OSBD13 plate in place of Nos. 2202 and OPBD13. Price with tumbler switch is **$5.14.** Compare with No. 518.

READY-WIRED COMBINATIONS



Consists of one-piece porcelain cup $2\frac{9}{16}$ inches long, $5\frac{5}{16}$ inches wide, $1\frac{13}{16}$ inches deep with standard supporting screw spacings for mounting in standard three-gang outlet box. This cup incorporates a D. P. push button switch, a bull's eye receptacle and a D. D. receptacle with plug all internally connected and ready for connection with line wires.

10 Amperes, 125 Volts

Mfrs. No.	Schedule	Carton	Std Pkg.	Wt Lb. Std.Pkg.	Price Each
518	H	10	1	35	**$5.60**
Without No. OPBD13 Solid Plate					**3.26**

Consists of one-piece porcelain cup $2\frac{9}{16}$ inches long, $5\frac{9}{32}$ inches wide, $1\frac{11}{16}$ inches deep with eight supporting screw holes spaced $3\frac{9}{32}$ and $2\frac{13}{16}$ inches on centers vertically and $3\frac{5}{8}$ inches on centers horizontally for installation in a standard three-gang outlet box. This cup incorporates a No. 2520 cup with No. 2523 D. P. push button switch mechanism; a No. 425 receptacle and a No. 1708 receptacle; all internally connected and ready for connection to line wires. Solid brass plate No. OPBE13 with No. 736 jewel is furnished to cover the working parts.

660 Watts, 125 Volts

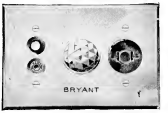
Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
437	H	1	10	33	**$4.40**
Without No. OPBE13 Solid Plate					**2.37**

BRYANT BULL'S EYE COMBINATIONS

N. E. C. Standard

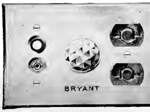
READY-WIRED—10 Amperes, 125 Volts

The lamps used in these combinations limit the voltage. No. 618 lamp, which is supplied unless otherwise specified, is for use on 125 volts. On special order and without extra charge any bull's eye device can be furnished with No. 619 lamp, 32 volts.



Consists of one-piece porcelain cup $2\frac{9}{16}$ inches long, $5\frac{1}{4}$ inches wide, $1\frac{13}{16}$ inches deep with eight supporting screw holes spaced $3\frac{9}{32}$ and $2\frac{13}{16}$ inches on centers vertically and $3\frac{5}{8}$ inches on centers horizontally for installation in a standard three-gang outlet box. This cup incorporates a No. 2520 cup with No. 2523 D. P. push button switch mechanism; No. 427 receptacle and a No. 120 Spartan single receptacle; all internally connected ready for connection to line wires. Solid brass plate No. OPBF13 with No. 736 jewel is furnished to cover working parts.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
467	H	1	10	35	**$4.45**
Without No. OPBF13 Solid Plate					**2.47**



Same as No. 467 above except that cup is $2\frac{9}{16}$ inches long, $5\frac{9}{32}$ inches wide, $1\frac{13}{16}$ inches deep, with No. 122 Spartan receptacle (duplex) instead of No. 120. Solid brass plate No. OPBV13 with No. 736 ruby jewel is furnished to cover working parts.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
558	H	1	10	35	**$4.60**
Without No. OPBV13 Solid Plate					**2.62**

NOT READY-WIRED

The complete assortment of parts costs **$3.41** list with either push button or tumble switch. Parts must be ordered separately and wired.

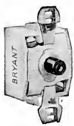
With .040 Inch Plate, D. P. Switch
No. 122 Receptacle

Mfrs. No.	Schedule	Description	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
2202	H	P.B.Switch	10	50	31	**$0.70**
OPBV43	H	Plate	2	10	11	**1.23**
Or Following Switch and Plate Can be Used						
2952	H	Tumb. Sw.	10	50	27	**.07**
OSBV43	H	Plate	2	10	11	**1.23**
In Connection With						
427	H	Receptacle	10	30	17	**1.00**
122	H	Receptacle	10	50	34	**.48**
Parts Complete, not Assembled						**3.41**

PERKINS FLUSH PUSH SWITCHES AND PLATE

N. E. C. Standard

ONE-BUTTON—TYPE O



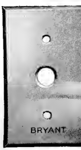
Length porcelain cups, $2\frac{17}{32}$ inches; width, $1\frac{11}{16}$ inches; depth, $1\frac{9}{16}$ inches. Supporting screw spacings: outside, $3\frac{9}{32}$ inches; inside, $2\frac{13}{16}$ inches.

Switches will be shipped with black buttons, unless otherwise specified, but buttons can be finished to match plates without extra charge.

Mfrs. No	Schedule	Amperes 125 V.	Amperes 250 V.	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
Single Pole							
2457	H	10	5	10	50	30	**$1.00**
Three-Point							
2458	H	10	5	10	50	32	**1.05**
Four-Point							
2459	H	5	2	10	10	6	**1.05**
Electrolier 1-2-1 & 2-Off							
2460	H	5	2	10	10	6	**1.05**
Electrolier 1-1 & 2-1 & 2 & 3-Off							
2461	H	5	2	10	10	6	**1.05**

Suitable machine screws are furnished for mounting these devices.

BRASS PLATES FOR TYPE O SWITCHES



The standard finish of plates is brush brass, which will be furnished when no finish is specified. Can be furnished in Perma finish for **$0.04** list per gang less than price of a similar plate in brush brass finish.

Symbol O plates, brush brass; standard spacings and dimensions, less than five gangs, list per gang: solid, **$0.34**; .060 inch, **$0.18**; .040 inch, **$0.14.** Five gangs or more, list per gang: solid, **$0.40**; .060 inch, **$0.26**; .040 inch, **$0.22.** For tandem plates, solid only, add 20 per cent.

One Gang, Stamped .060 Inch

Mfrs. No.	Schedule	Size, Inches Length	Size, Inches Width	Carton	Wt.Lb. Std.Pkg.	Price Each
0061	H	4½	2¾	20	32	**$0.18**

A standard package of flush plates for type O switches consists of a sufficient number to accommodate 100 switches. Type O plates may be assorted in any finishes, thicknesses and gangs to make up a standard package (100 gangs) or a carton (20 gangs). No other assortment permitted.

SELF-RESTORING DOOR SWITCHES

PERKINS—N. E. C. Standard

SINGLE POLE

6 Amperes, 125 Volts—3 Amperes, 250 Volts

Complete with brass plate 4⅝x1¼ inches and with brass strike plate. Porcelain cup: length, $3\frac{7}{32}$ inches; width, $\frac{31}{32}$ inch; depth, 1½ inches. Switch only, **$1.80** list. Standard package same as complete switch. Plates only (2), **$0.50** list. Standard package, 10.

Mfrs. No	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
Circuit Closed When Door is Open					
2355	H	1	25	20	**$2.25**
Circuit Closed When Door is Closed					
2356	H	1	10	10	**2.25**

PERKINS TWO-BUTTON FLUSH PUSH SWITCHES

N. E. C. Standard

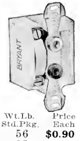
Single-pole and double-pole switches are regularly made with one pearl and one black button; three-point and four-point switches with two black buttons. On special order these switches will be furnished with two pearl buttons without extra charge. For luminous buttons, add **$0.25** each.

TYPE P SWITCHES

Length of porcelain cups, $2\frac{9}{16}$ inches; width, $1\frac{11}{16}$ inches; depth, $1\frac{9}{16}$ inches. Supporting screw spacings: outside, $3\frac{9}{32}$ inches; inside, $2\frac{13}{16}$ inches.

Mfrs. No.	Schedule	Type	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
2201	H	Single-Pole	10	100	55	**$0.45**
2202	H	Double-Pole	10	50	31	**.70**
2203	H	Three-Point	10	50	30	**.70**
2204	H	Four-Point	10	10	7	**2.00**
2623	H	Double-Pole	10	20	12	**.80**

TYPE P LOCK SWITCHES



Half-lock switches with one regular button and one lock attachment can be furnished on special order at same price as lock switches. One No. 2299 key furnished with each lock switch. Length of porcelain cups and supporting screw spacings are the same as shown above.

Mfrs. No	Schedule	Type	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
2295	H	Single-Pole	10	100	56	**$0.90**
2298	H	Double-Pole	10	50	32	**1.15**
2296	H	Three-Point	10	50	31	**1.15**
2297	H	Four-Point	10	10	7	**2.45**
2624	H	Double-Pole	10	20	12	**1.25**

TYPE P ELECTROLIER SWITCHES

5 Amperes, 125 Volts
2 Amperes, 250 Volts

These switches have one metal button operating type O switch mechanism. The other button is composition and does not move. Length of porcelain cups, $2\frac{9}{16}$ inches; width, $1\frac{11}{16}$ inches; depth, $1\frac{23}{32}$ inches. Outside supporting screw spacings, $3\frac{9}{32}$ inches; inside, $2\frac{13}{16}$ inches.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
1, 2, 1 and 2, Off					
2625	H	10	10	7	**$1.05**
1, 1 and 2, 1, Off					
2626	H	10	10	7	**1.05**
1, 1 and 2, 1 and 2 and 3, Off					
2627	H	10	10	7	**1.05**
1, Off, 2, Off					
2628	H	10	10	7	**1.05**
1, Off, 1 and 2, Off					
2629	H	10	10	7	**1.05**
1, 1 and 2, Off					
2630	H	10	10	7	**1.05**
Motor Speed Control					
1, 2, Off					
2631	H	10	10	7	**1.05**
1, 2, 3, Off					
2632	H	10	10	7	**1.05**

PERKINS TWO-BUTTON FLUSH PUSH SWITCHES

N. E. C. Standard

SELF-RESTORING TYPE

10 A., 125 V.—5 A., 250 V.

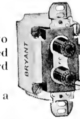
Circuit is closed or opened as the case may be, only while the button is held in. As soon as pressure is released, the switch automatically restores itself to its normal position. Porcelain cups are $2\frac{9}{16}$ inches long, $1\frac{5}{8}$ inches wide, $1\frac{19}{32}$ inches deep. Supporting screw spacings: outside, $3\frac{9}{32}$ inches; inside, $2\frac{13}{16}$ inches.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
	Button Type—Normally Open				
2641	H	10	10	6	**$0.85**
	Button Type—Normally Closed				
2707	H	10	10	6	**.85**
	Lock Type—Normally Open				
2643	H	10	10	6	**1.30**
	Lock Type—Normally Closed				
2708	H	10	10	6	**1.30**

Self-restoring switches are regularly made with one pearl button and one black button. One No. 2299 key is furnished with each lock switch.

TYPE D SWITCHES

10 A., 125 V.—5 A., 250 V.



The type D switch consists of two type O switch mechanisms mounted in a single porcelain cup of standard dimensions.

No. 2639 can also be used as a two-circuit electrolier switch.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
	Two Single Pole—Separate Feed				
2709	H	10	10	7	**$2.00**
	Two Single Pole—Common Feed				
2639	H	10	10	7	**1.80**
	Single Pole and Three-Point—Common Feed				
2710	H	10	10	7	**2.00**

TYPE D SWITCHES

Type D switches each with one single-pole switch and one electrolier switch, common feed. 10 amperes, 125 volts; 5 amperes, 250 volts, for single-pole, 5 amperes, 125 volts; 2 amperes, 250 volts for electrolier.

SINGLE POLE AND ELECTROLIER

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
	1, 2, 1 and 2, Off				
2738	H	10	10	7	**$2.00**
	1, 1 and 2, 1, Off				
2739	H	10	10	7	**2.00**
	1, Off, 2, Off				
2740	H	10	10	7	**2.00**
	1, Off, 1 and 2, Off				
2741	H	10	10	7	**2.00**
	1, 1 and 2, Off				
2742	H	10	10	7	**2.00**

SINGLE POLE AND MOTOR CONTROL

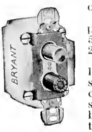
Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
	1, 2, Off				
2743	H	10	10	7	**2.00**

The switches listed above will be shipped with black buttons, unless otherwise specilied, but buttons can be furnished to match plates without extra charge. Dimensions of porcelain cups: length, $2\frac{9}{16}$ inches; width, $1\frac{11}{16}$ inches; depth, $1\frac{25}{32}$ inches. Supporting screw spacings: outside, $3\frac{9}{32}$ inches; inside, $2\frac{13}{16}$ inches.

PERKINS TWO-BUTTON FLUSH PUSH SWITCHES

N. E. C. Standard

TYPE D SWITCH—SELECTIVE



Type D switch, selective, one single-pole switch in series with one 3-circuit electrolier switch.

10 amperes, 125 volts; 5 amperes, 250 volts on single-pole end. 5 amperes, 125 volts; 2 amperes, 250 volts on electrolier end.

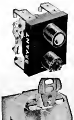
Successive pushes on the electrolier switch button (black button) select desired combinations of circuits. Successive pushes on the single-pole switch button (nickeled button) alternately open and close the main line circuit which feeds the various branch circuits through the electrolier switch.

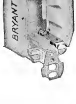
Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
	Single-Pole and Electrolier				
	1, 1 and 2, 1 and 2 and 3				
2640	H	10	10	7	**$2.00**

Dimensions of porcelain cup: length, $2\frac{9}{16}$ inches; width, $1\frac{11}{16}$ inches; depth, $1\frac{25}{32}$ inches. Supporting screw spacings: outside, $3\frac{9}{32}$ inches; inside, $2\frac{13}{16}$ inches.

REMOVABLE MECHANISM FLUSH SWITCH AND RECEPTACLE

10 Amperes, 125 Volts—5 Amperes, 250 Volts





Connections are made to the terminals of the receptacle. Switch mechanism fits into receptacle and makes contact with terminal plates on cup. Switch and cup are both necessary to make complete unit. Dimensions No. 2520: length, $2\frac{9}{16}$ inches; width, $1\frac{11}{16}$ inches; depth, $1\frac{9}{16}$ inches. Supporting screw spacings: outside, $3\frac{9}{32}$ inches; inside, $2\frac{13}{16}$ inches.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
	For Hospital Signal System				
488	H	....	....	....	**$1.10**
	Porcelain Receptacle*				
2520	H	50	10	24	**.40**

*For Nos. 488 and 2523 switches.

PERKINS SHALLOW CUP SWITCHES

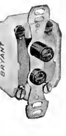
Extremely shallow switch for use in thin partitions. Porcelain cups are $2\frac{9}{16}$ inches long, $1\frac{7}{32}$ inches deep. No. 5501 is $1\frac{7}{16}$ inches wide. Nos. 5502, 5503, 5504 and 5505 arc $1\frac{11}{16}$ inches wide. Supporting screw spacings: outside, $3\frac{9}{32}$ inches; inside, $2\frac{13}{16}$ inches.

Mfrs. No.	Schedule	Amperes 125 V.	Amperes 250 V.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
			Single-Pole				
5501	H	10	5	10	100	40	**$0.35**
			Double-Pole				
5502	H	10	10	10	50	25	**.70**
			Three-Point				
5503	H	10	5	10	50	25	**.50**
			Four-Point				
5504	H	5	2	10	10	5	**2.00**
			Double-Pole				
5505	H	20	10	10	50	25	**1.00**

TWO-BUTTON TYPE FLUSH PUSH SWITCHES

N. E. C. Standard

YANKEE SWITCHES—TYPE Y



Porcelain cups are $2\frac{9}{16}$ inches long, $1\frac{5}{8}$ inches deep. No. 2901 is $1\frac{5}{8}$ inches wide. No. 2903 is $1\frac{21}{32}$ inches wide. Supporting screw spacings: outside, $3\frac{9}{32}$ inches; inside, $2\frac{13}{16}$ inches.

For switches with supporting screws soldered add to list **$0.10**. For switches with both buttons white ivory regular length add to list **$1.00**.

Mfrs. No	Schedule	Amperes 125 V.	Amperes 250 V.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
			Single-Pole				
2901	H	10	5	10	100	51	**$0.35**
			Three-Point				
2903	H	10	5	10	50	29	**.50**

BRYANT COMPOSITION CUP SWITCHES

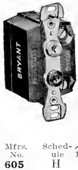
High grade push button switches. The mechanism is entirely enclosed in a dirt-proof case. Each switch has a self-adjusting yoke which accommodates switch and plate to the box, holding both switch and plate in their proper positions on the wall.

Composition cups are $2\frac{9}{16}$ inches long, $1\frac{11}{16}$ inches wide, $1\frac{19}{32}$ inches deep. Supporting screw spacings: outside, $3\frac{9}{32}$;inside, $2\frac{13}{16}$ inches.

PUSH BUTTON SWITCHES

Mfrs. No.	Schedule	Amperes 125 V.	Amperes 250 V.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
			Single-Pole				
601	H	10	5	10	50	31	**$0.72**
			Double-Pole				
602	H	10	10	10	10	6	**.88**
			Three-Point				
603	H	10	5	10	20	12	**.88**
			Four-Point				
604	H	10	5	10	10	6	**2.00**
			Double-Pole				
609	H	20	10	10	10	6	**1.40**

PUSH LOCK SWITCHES



One No. 2299 key is furnished with each lock switch. Composition cups are $2\frac{9}{16}$ inches long, $1\frac{11}{16}$ inches wide, $1\frac{19}{32}$ inches deep. Supporting screw spacings: outside, $3\frac{9}{32}$ inches; inside, $2\frac{13}{16}$ inches.

Mfrs. No.	Schedule	Amperes 125 V.	Amperes 250 V.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
			Single-Pole				
605	H	10	5	10	50	33	**$1.17**
			Double-Pole				
606	H	10	10	10	10	6	**1.33**
			Three-Point				
607	H	10	5	10	20	12	**1.33**
			Four-Point				
608	H	10	5	10	10	7	**2.45**
			Double-Pole				
610	H	20	10	10	10	7	**1.85**

FLUSH PLATES FOR TWO-BUTTON TYPE PUSH SWITCHES

Schedule H—N. E. C. Standard
ONE HORIZONTAL ROW—Symbol P

The standard finish of these plates is brush brass, which will be shipped when no finish is specified. Standard spacings and dimensions only. Switches in gangs spaced $1\frac{13}{16}$ inches on centers.

Brass mounting screws are packed in the carton with each plate.

Solid Brass Plates

Standard Finish Mfrs. No.	Price Each	No. of Gangs	Size In. Lgth.	Size In. Wdth.	Pkg. Wt.	Perma Finish Mfrs. No.	Price Each
OP11	**$0.34**	1	$4\frac{1}{2}$	$2\frac{3}{4}$	41	**OP11-P**	**$0.30**
OP12	**.68**	2	$4\frac{1}{2}$	$4\frac{9}{16}$	35	**OP12-P**	**.60**
OP13	**1.02**	3	$4\frac{1}{2}$	$6\frac{3}{8}$	32	**OP13-P**	**.90**
OP14	**1.36**	4	$4\frac{1}{2}$	$8\frac{3}{16}$	30	**OP14-P**	**1.20**
OP15	**2.00**	5	$4\frac{1}{2}$	10	28	**OP15-P**	**1.80**
OP16	**2.40**	6	$4\frac{1}{2}$	$11\frac{13}{16}$	26	**OP16-P**	**2.16**
OP17	**2.80**	7	$4\frac{1}{2}$	$13\frac{5}{8}$	24	**OP17-P**	**2.52**
OP18	**3.20**	8	$4\frac{1}{2}$	$15\frac{7}{16}$	22	**OP18-P**	**2.88**

The price of brush brass solid P plates above eight gangs, when dimensions and spacings are standard, is **$0.40** list per gang.

Stamped Brass .060 Inch

OP61	**.18**	1	$4\frac{1}{2}$	$2\frac{3}{4}$	30	**OP61-P**	**.14**
OP62	**.36**	2	$4\frac{1}{2}$	$4\frac{9}{16}$	27	**OP62-P**	**.28**
OP63	**.54**	3	$4\frac{1}{2}$	$6\frac{3}{8}$	25	**OP63-P**	**.42**
OP64	**1.04**	4	$4\frac{1}{2}$	$8\frac{3}{16}$	23	**OP64-P**	**.88**
OP65	**1.30**	5	$4\frac{1}{2}$	10	21	**OP65-P**	**1.10**
OP66	**1.56**	6	$4\frac{1}{2}$	$11\frac{13}{16}$	23	**OP66-P**	**1.32**
OP67	**1.82**	7	$4\frac{1}{2}$	$13\frac{5}{8}$	21	**OP67-P**	**1.54**
OP68	**2.08**	8	$4\frac{1}{2}$	$15\frac{7}{16}$	22	**OP68-P**	**1.76**

The price of brush brass .060 inch P plates, above eight gangs, when dimensions and spacings are standard, is **$0.26** list per gang.

Stamped Brass .040 Inch

OP41	**.14**	1	$4\frac{1}{2}$	$2\frac{3}{4}$	24	**OP41-P**	**.10**
OP42	**.28**	2	$4\frac{1}{2}$	$4\frac{9}{16}$	21	**OP42-P**	**.20**
OP43	**.42**	3	$4\frac{1}{2}$	$6\frac{3}{8}$	20	**OP43-P**	**.30**
OP44	**.88**	4	$4\frac{1}{2}$	$8\frac{3}{16}$	19	**OP44-P**	**.72**
OP45	**1.10**	5	$4\frac{1}{2}$	10	18	**OP45-P**	**.90**
OP46	**1.32**	6	$4\frac{1}{2}$	$11\frac{13}{16}$	22	**OP46-P**	**1.08**
OP47	**1.54**	7	$4\frac{1}{2}$	$13\frac{5}{8}$	20	**OP47-P**	**1.26**
OP48	**1.76**	8	$4\frac{1}{2}$	$15\frac{7}{16}$	23	**OP48-P**	**1.44**

The price of brush brass .040 inch P plates, above eight gangs, when dimensions and spacings are standard, is **$0.22** list per gang.

TANDEM FLUSH PLATES

Solid Brass—One Vertical Row

3369	**.80**	2	$8\frac{1}{8}$	*	38	**3369-P**	**.73**
3370	**1.20**	3	$11\frac{3}{4}$	*	37	**3370-P**	**1.08**
3371	**1.60**	4	$15\frac{3}{8}$	*	36	**3371-P**	**1.44**

The price of brush brass solid P plates in one vertical row above four gangs, when dimensions and spacings are standard, is **$0.40** list per gang.

Solid Brass—Two Vertical Rows

3672	**2.12**	4	$15\frac{3}{8}$	*	34	**3672-P**	**1.96**
3673	**3.18**	6	$22\frac{5}{8}$	*	32	**3673-P**	**2.94**
3674	**4.24**	8	......	*	34	**3674-P**	**3.92**

*Width of plate varies according to number of vertical rows.

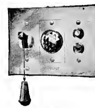
The price of brush brass solid P plates in two vertical rows above eight gangs, when dimensions and spacings are standard, is **$0.53** list per gang.

Note.—A standard package of P plates consists of a sufficient number to accommodate 100 two-button flush push switches. A carton is one-fifth of a standard package, unless otherwise stated. P plates may be assorted in various thicknesses, finishes and gangs to make up carton and standard package quantities. No other assortment permitted.

BRYANT HOSPITAL SIGNAL SYSTEM

125 VOLTS

Calling Station Operated By Pulling a Cord

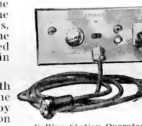


Calling Station Has Provisions for Calling a Doctor, Also Intended for Use in Wards

The Bryant System is particularly designed for summoning nurses in hospitals and similar institutions. It provides a means for transmitting a signal to one or as many points as desired, and the signals cannot be changed or effaced until the call has been answered at point of origin. Supplemental equipment provides for emergency calls and the signalling of doctors. By the use of an Elapsed Time Recorder, positive record may also be obtained as to the origin and time of and response to calls as made. The following features of the Bryant System are worthy of consideration by anyone interested in such installations:

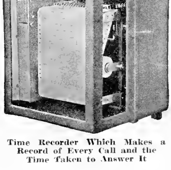
Signal Light

Operates direct on 100 to 125 volts direct or alternating current, without relays, motor generators, transformers or auxiliary appartus of any kind. The wiring for the Bryant System may be installed in the same raceways with the house lighting circuits, and all parts of the system are designed with an ample margin of safety.



Calling Station Operated By Pressing a Button

Simultaneously with the registration of the call, accomplished by pressure on the button of the bed-push, the current is automatically shut off from the extension cord. Cancellation of the call is only accomplished when the nurse presses the control button of the station calling, which operation also restores the connection to the extension cord. The extension cord is extremely flexible, being specially manufactured for this system. Each conductor is heavily insulated with rubber and the two conductors are then surrounded with additional heavy rubber insulation — the whole being protected by a heavy braid of cotton.



Time Recorder Which Makes a Record of Every Call and the Time Taken to Answer It

Current for operating the system may be taken from lighting distribution panels instead of from a centralized source of energy, such as a low voltage motor-generator or a storage battery.

PERKINS FLUSH ROTARY SWITCHES

N. E. C. Standard

TYPE R ROTARY SWITCHES

With No. 2779 Composition Handle

Porcelain cups are $2\frac{9}{16}$ inches long, $1\frac{11}{16}$ inches wide and $1\frac{9}{16}$ inches deep. Outside supporting screw holes spaced $3\frac{9}{32}$ inches on centers; inside supporting screw holes spaced $2\frac{13}{16}$ inches on centers. Can be converted into lock switches by removing the handle and substituting lock attachment No. 2384.

Machine screws furnished for mounting on box.

Mfrs. No.	Schedule	Amperes 125 V.	Amperes 250 V.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
Single Pole							
2205	H	5	3	10	100	58	**$0.62**
2206	H	10	5	10	50	31	**.71**
Double Pole							
2207	H	10	10	10	50	31	**1.05**
Three-Point							
2325	H	5	3	10	50	31	**.82**
2208	H	10	5	10	50	31	**1.05**
Four-Point							
2209	H	5	2	10	10	7	**1.05**
Electrolier 1, 2, 1 and 2, Off							
2224	H	5	2	10	10	7	**1.05**
Electrolier 1, 1 & 2, 1 & 2 & 3, Off							
2210	H	5	2	10	10	7	**1.05**

BRASS PLATES FOR TYPE R SWITCHES

One Horizontal Row—Symbol R

Symbol R plates, brush brass, standard spacings and dimensions, less than five gangs, per gang: solid **$0.40,** .060 inch **$0.24,** .040 inch **$0.20.** Five gangs or more, per gang: solid **$0.46,** .060 **$0.32,** .040 **$0.28.** For tandem plates, solid only, add 20 per cent.

Mfrs. No.	Schedule	Size Plate Inches	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
Stamped from .040 Inch Brass						
OR41	H	4½x2¾	25	*	32	**$0.20**
Stamped from .060 Inch Brass						
OR61	H	4½x2¾	25	*	37	**.24**
Solid Brass						
OR11	H	4½x2¾	25	*	55	**.40**

*A standard package consists of a sufficient number to accommodate 100 type R switches. R plates may be assorted in various finishes, thicknesses and gangs to make up a standard package (100 gangs) or a carton (20 gangs). No other assortment permitted.

HIGH CAPACITY FLUSH SWITCH

30 Amperes—All Voltages to 250 Volts Maximum

Switch is $1\frac{15}{16}$ inches deep and requires a two-gang standard switch or outlet box. Holes for four supporting screws spaced $3\frac{9}{32}$ inches on centers vertically and $1\frac{13}{16}$ inches on centers horizontally. Gang plates solid only for No. 2568 switches made on special order at a price of **$1.50** list per gang.

Mfrs. No	Schedule	Dimen. In. Lgth	Dimen. In. Wdth.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
High Capacity—Indicating							
2568	H	$2\frac{9}{16}$	3½	1	10	13	**$2.00**
Single, Two-Gang, Solid Brass Plate for Above							
OY12	H	4½	$4\frac{9}{16}$	1	10	9	**1.00**

BRYANT FLUSH TUMBLER SWITCHES

Schedule H—N. E. C. Standard

FLUSH TUMBLER TYPE

Porcelain Cups—Black Composition Handles—Single Pole—Indicating

Mfrs. No	Amperes 125 V.	Amperes 250 V.	Std Pkg	Wt.Lb Std.Pkg.	Price Each
2951	10	5	100	47	**$0.45**
Double Pole—Indicating					
2952	10	10	50	27	**.70**
Three Point					
2953	10	5	50	28	**.70**
Four Point					
2954	5	2	10	5	**2.00**
Double Pole—Indicating					
2955	20	10	10	5	**1.00**

Composition Cups
Black Composition Handles
Single Pole—Indicating

Mfrs. No	Amperes 125 V	Amperes 250 V.	Std Pkg.	Wt Lb Std Pkg.	Price Each
2961	10	5	50	27	**$0.72**
Double Pole—Indicating					
2962	10	10	10	5	**.88**
Three Point					
2963	10	5	20	10	**.88**
Four Point					
2964	5	2	10	5	**2.00**
Double Pole—Indicating					
2965	20	10	10	5	**1.40**

All above switches 10 in a carton.

The above switches can be furnished with transparent handle with luminous material inside at an addition to list price of **$0.65.** Can be furnished with luminous handle tip at an addition to list price of **$0.25** for each handle so equipped.

LOCK TYPE—Porcelain Cups
Single Pole—Indicating

One No. 2126 key furnished with each switch.

Mfrs. No	Amperes 125 V.	Amperes 250 V.	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
2871	10	5	100	45	**$0.90**
Double Pole—Indicating					
2872	10	10	50	26	**1.15**
Three Point					
2873	10	5	50	27	**1.15**
Four Point					
2874	5	2	10	5	**2.45**
Double Pole—Indicating					
2875	20	10	10	5	**1.45**

All of the above switches 10 in a carton.

LOCK TYPE—Composition Cups

One No. 2126 key furnished with each switch.

Single Pole—Indicating

Mfrs. No	Schedule	Amperes 125 V.	Amperes 250 V.	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
2881	H	10	5	10	50	26	**$1.17**
Double Pole—Indicating							
2882	H	10	10	10	10	5	**1.33**
Three Point							
2883	H	10	5	10	20	9	**1.33**
Four Point							
2884	H	5	2	10	10	5	**2.45**
Double Pole—Indicating							
2885	H	20	10	10	10	5	**1.85**

Dimensions of porcelain and composition cups: single pole switches: length, $2\frac{9}{16}$ inches; width, $1\frac{5}{8}$ inches; depth, $1\frac{5}{16}$ inches.

All other switches: length, $2\frac{9}{16}$ inches; width, $1\frac{11}{16}$ inches; depth, $1\frac{5}{16}$ inches. Supporting screw spacings: outside, $3\frac{9}{32}$ inches; inside, $2\frac{13}{16}$ inches.

When ordering combination plates specify S sections to accommodate the tumble switches listed above.

Regular and lock switches of the same description may be assorted to make up a standard package quantity, for example, Nos. 2951 and 2871, and no other assortment is permissible.

BRYANT FLUSH TUMBLER SWITCHES

N. E. C. Standard

TRIGLE FLUSH TUMBLER SWITCH

Porcelain Cup—Black Composition Handles

Three switch mechanisms with common feed mounted in same cup. Can be used as three-circuit electrolier switch or for controlling three separate circuits. Capacity complete device, 10 amperes, 125 volts; 5 amperes, 250 volts.

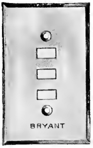
Three-Circuit Tumbler Switch

Mfrs. No	Schedule	Carton	Std Pkg.	Wt.Lb. Std Pkg.	Price Each
2860	H	10	100	60	**$2.00**

Dimensions porcelain cup: $2\frac{13}{16}$ inches long; $1\frac{11}{16}$ inches wide; $1\frac{9}{32}$ inches deep. Supporting screw spacings $3\frac{9}{32}$ inches.

SOLID BRASS PLATE

For Trigle Switch No. 2860

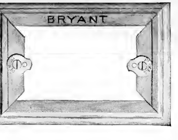


Standard finish is brush brass. List price of any flush plate in Perma finish is **$0.04** list per gang less than the same plate in brush brass.

Standard package consists of sufficient quantity to accommodate 100 Trigle switches. S2 plates may be assorted in various finishes and gangs to make carton or standard package. No other assortment permitted.

Standard Finish Mfrs. No	Schedule	Price Each	No. of Gangs	Carton	Pkg. Wt.	Perma Finish Mfrs. No	Schedule	Price Each
OS211	H	**$0.34**	1	20	36	**OS211-P**	H	**$0.30**

BRYANT WOOD MATS FOR FLUSH DEVICES



For flush switches and receptacles. May be used with or without outlet boxes. Furnished in quartered oak varnished and rubbed, or in white wood unfinished; suitable for finishing to match any desired wood.

Quartered Oak—Varnished and Rubbed

Mfrs. No.	Schedule	No. of Gangs	Size, In. Lgth.	Size, In. Wdth.	Carton	Std. Pkg.	Pkg. Wt.	Price Each
2361	H	1	5½	3¾	10	*	32	**$0.50**
2362	H	2	5½	$5\frac{9}{16}$	5	*	24	**.70**
2363	H	3	5½	7⅜	5	*	16	**.90**
2364	H	4	5½	$9\frac{3}{16}$	5	*	14	**1.10**

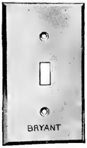
White Wood—Unfinished

Mfrs. No.	Schedule	No. of Gangs	Size, In. Lgth.	Size, In. Wdth.	Carton	Std. Pkg.	Pkg. Wt.	Price Each
2373	H	1	5½	3¾	10	*	27	**.50**
2374	H	2	5½	$5\frac{9}{16}$	5	*	19	**.70**
2375	H	3	5½	7⅜	5	*	11	**.90**
2376	H	4	5½	$9\frac{3}{16}$	5	*	9	**1.10**

*A standard package of wood mats consists of a sufficient number assorted from all of those listed to accommodate 100 gangs.

BRYANT FLUSH PLATES FOR TUMBLER SWITCHES

N. E. C. Standard



The standard finish is brush brass which will be furnished when no finish is specified. The list price of any flush plate in Perma finish is **$0.04** list per gang less than the same plate in brush brass finish.

A standard package of S plates consists of a sufficient quantity to accommodate 100 flush tumbler switches of the same style. A carton is one-fifth of a standard package except as otherwise stated. S plates may be assorted in various finishes, thicknesses and gangs to make up carton and standard package quantities. No other assortment permitted.

Brass mounting screws are packed in the carton with each plate.

ONE HORIZONTAL ROW

Solid Brass Plates

Standard Finish Mfrs. No.	Schedule	Price Each	No. of Gangs	Pkg. Wt.	Perma Finish Mfrs. No.	Schedule	Price Each
OS11	H	**$0.34**	1	36	**OS11-P**	H	**$0.30**
OS12	H	**.68**	2	34	**OS12-P**	H	**.60**
OS13	H	**1.02**	3	32	**OS13-P**	H	**.90**
OS14	H	**1.36**	4	31	**OS14-P**	H	**1.20**
OS15	H	**2.00**	5	30	**OS15-P**	H	**1.80**
OS16	H	**2.40**	6	33	**OS16-P**	H	**2.16**
OS17	H	**2.80**	7	31	**OS17-P**	H	**2.52**
OS18	H	**3.20**	8	32	**OS18-P**	H	**2.88**

The price of brush brass solid S plates above eight gangs, when dimensions and spacings are standard, is **$0.40** list per gang.

Stamped Brass Plates—.060 Inch

OS61	H	**.18**	1	32	**OS61-P**	H	**.14**
OS62	H	**.36**	2	26	**OS62-P**	H	**.28**
OS63	H	**.54**	3	24	**OS63-P**	H	**.42**
OS64	H	**1.04**	4	23	**OS64-P**	H	**.88**
OS65	H	**1.30**	5	22	**OS65-P**	H	**1.10**
OS66	H	**1.56**	6	20	**OS66-P**	H	**1.32**
OS67	H	**1.82**	7	19	**OS67-P**	H	**1.54**
OS68	H	**2.08**	8	21	**OS68-P**	H	**1.76**

The price of brush brass .060 inch S plates above eight gangs, when dimensions and spacings are standard, is **$0.26** list per gang.

Stamped Brass Plates—.040 Inch

OS41	H	**.14**	1	24	**OS41-P**	H	**.10**
OS42	H	**.28**	2	32	**OS42-P**	H	**.20**
OS43	H	**.42**	3	21	**OS43-P**	H	**.30**
OS44	H	**.88**	4	20	**OS44-P**	H	**.72**
OS45	H	**1.10**	5	19	**OS45-P**	H	**.90**
OS46	H	**1.32**	6	20	**OS46-P**	H	**1.08**
OS47	H	**1.54**	7	18	**OS47-P**	H	**1.26**
OS48	H	**1.76**	8	17	**OS48-P**	H	**1.44**

The price of brush brass .040 inch S plates above eight gangs, when dimensions and spacings are standard, is **$0.22** list per gang.

TANDEM PLATES

Solid Brass—One Vertical Row

3792	H	**.80**	2	26	**3792-P**	H	**.72**
3793	H	**1.20**	3	24	**3793-P**	H	**1.08**
3794	H	**1.60**	4	37	**3794-P**	H	**1.44**

The price of brush brass solid S plates in one vertical row above four gangs, when dimensions and spacings are standard, is **$0.40** list per gang.

BRYANT TELEPHONE PLATES, BELL PUSH PLATES AND BUTTONS

BRASS TELEPHONE PLATES

One composition bushing with $\frac{13}{32}$ inch hole. Symbol G plates, brush brass, standard spacings and dimensions, less than four gangs, list per gang: solid **$0.40**, .060 inch **$0.24**, .040 inch **$0.20**. Four gangs or more, list per gang: solid **$0.46**, .060 inch **$0.32**, .040 inch **$0.28**. For tandem plates, solid only, add 20 per cent.

One-Gang, Solid

Mfrs. No.	Schedule	Dimen. In. Length	Dimen. In. Width	Carton	Std. Pkg.	Wt. Lb. Std Pkg.	Price Each
OG11	H	4½	2¾	20	*	57	**$0.40**
One-Gang, Stamped .060 Inch							
OG61	H	4½	2¾	20	*	39	**.24**
One-Gang, Stamped .040 Inch							
OG41	H	4½	2¾	20	*	34	**.20**
One-Gang, Stamped .040 Inch—Perma Finish							
OG41-P	H	4½	2¾	20	*	57	**.16**

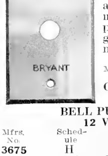
Two composition bushings each with $\frac{13}{32}$ inch hole. Symbol H plates, brush brass, standard spacings and dimensions, less than four gangs, list per gang: solid **$0.44**, .060 inch **$0.28**, .040 inch **$0.24**. Four gangs or more, list per gang: solid **$0.50**, .060 inch **$0.36**, .040 inch **$0.32**. For tandem plates, solid only, add 20 per cent.

One-Gang, Solid

Mfrs. No.	Schedule	Dimen. In. Length	Dimen. In. Width	Carton	Std. Pkg.	Wt. Lb. Std Pkg.	Price Each
OH11	H	4½	2¾	20	*	54	**$0.44**
One-Gang, Stamped .060 Inch							
OH61	H	4½	2¾	20	*	40	**.28**
One-Gang, Stamped .040 Inch							
OH41	H	4½	2¾	20	*	37	**.24**
One-Gang, Stamped .040 Inch—Perma Finish							
OH41-P	H	4½	2¾	20	*	37	**.20**

*Standard package consists of enough plates to cover 100 one-gang boxes and may be any assortment of G and H plates in any finishes, thicknesses and gangs. Standard ⅝ inch composition socket bushings are used. Plates are threaded and bushings screwed in.

BRASS PLATE FOR 12 VOLT BELL PUSH BUTTON



Button is not furnished with No. OT11 see No. 3675. Diameter of center hole ⅝ inch. Standard package 50 gangs which may be an assortment of T plates in various finishes and gangs. No other assortment permitted.

One-Gang, Solid

Mfrs. No.	Schedule	Carton	Wt. Lb. Std Pkg.	Price Each
OT11	H	10	28	**$0.34**

Size plate 4½x2¾ inches.

BELL PUSH BUTTON ONLY

12 Volts for T Plates

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
3675	H	10	50	5	**$0.50**

Button projects behind plate $\frac{7}{16}$ inch.

BRYANT BELL PUSH PLATE

BRASS PLATE

With 110 Volt Bell Push-Button

Button projects behind plate $1\frac{3}{8}$ inches, and is $\frac{3}{4}$ inch diameter. Supporting screw spacings, $3\frac{9}{32}$ inches. Standard finish brush brass. Brass mounting screws are packed in the carton with each plate. The list price of Perma finish for any flush plate is **$0.04** list per gang less than list price of similar plate in brush brass finish.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
0T311	H	1	10	6	**$3.00**

BRYANT BLANK FLUSH PLATES

N. E. C. Standard

The standard finish of flush plates is brush brass, which will be furnished when no finish is specified. Perma finish is a durable colored lacquer or varnish that resembles brush brass. List price of any Perma (Symbol P) finish is **$0.04** list per gang less than the same plate in brush brass finish.

A standard package of K plates consists of a sufficient number to cover 100 gangs. A carton is one-fifth of a standard package except as otherwise stated. K plates may be assorted in various finishes, thicknesses or gangs to make up carton and standard package quantities. No other assortment permitted.

Solid blank plates K, one horizontal row only, when spacings and dimensions are standard, can be furnihed at **$0.44** list per gang, and under the same conditions struck-up blank plates can be furnished at **$0.30** list per gang when .060 inch thick and at **$0.26** list per gang when .040 inch thick. For tandem plates add 20 per cent.

Unless otherwise specified supporting screws are spaced $3\frac{9}{32}$ inches on centers vertically and $1\frac{13}{16}$ inches on centers horizontally, so that the plate will be attached directly to the ears of the box.

When mounting yokes are wanted with the plates, add to the prices shown **$0.05** list per gang. When yokes are furnished the plate supporting screws are spaced $2\frac{3}{8}$ inches on centers vertically.

Blank Brass Plates—One Horizontal Row
Symbol K

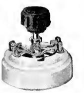
Standard Finish				Perma Finish		
Mfrs. No.	Schedule	Price Each	Wt.Lb. Std.Pkg.	Mfrs. No.	Schedule	Price Each
			One-Gang, Solid			
OK11	H	**$0.38**	49	**OK11-P**	H	**$0.34**
			Two-Gang, Solid			
OK12	H	**.76**	44	**OK12-P**	H	**.68**
			Three-Gang, Solid			
OK13	H	**1.14**	41	**OK13-P**	H	**1.02**
			One-Gang, Stamped .060 Inch			
OK61	H	**.22**	33	**OK61-P**	H	**.18**
			Two-Gang, Stamped .060 Inch			
OK62	H	**.44**	29	**OK62-P**	H	**.36**
			One-Gang, Stamped .040 Inch			
OK41	H	**.18**	27	**OK41-P**	H	**.14**
			Two-Gang, Stamped .040 Inch			
OK42	H	**.36**	23	**OK42-P**	H	**.28**
			Three-Gang, Stamped .040 Inch			
OK43	H	**.54**	21	**OK43-P**	H	**.42**

BRYANT SURFACE SWITCHES

N. E. C. Standard

Porcelain Base and Composition Handles

SINGLE POLE—WITH METAL COVERS



5 Amp., 125 V.—3 Amp., 250 V.

Diameter base, 2 inches; height over cover, $1\frac{13}{32}$ inches; height over handle, $1\frac{15}{16}$ inches; supporting screw spacings, $1\frac{3}{8}$ inches. Nos. 2220 and 2035 can be supplied at no advance in price, on base $1\frac{3}{4}$ inches diameter. Standard finish metal covers, polished nickel.

Mfrs. No.	Schedule	Description	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
2220	H	Solid	10	250	80	**$0.28**
2000	H	Slotted	10	250	80	**.28**
2035	H	Solid, Ind.	10	250	80	**.32**
2047	H	Slotted, Ind...	10	250	80	**.32**

SINGLE POLE—WITH METAL COVER

5 Amperes, 125 Volts
3 Amperes, 250 Volts

Diameter base, $2\frac{7}{16}$ inches; height over cover, $1\frac{13}{32}$ inches; height over handle, $1\frac{15}{16}$ inches; supporting screw spacings, $1\frac{1}{2}$ inches. Standard finish metal covers, polished nickel.

Mfrs. No	Schedule	Description	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
2170	H	Solid	10	100	40	**$0.36**
2002	H	Slotted	10	100	40	**.36**
2254	H	Solid, Ind.	10	100	40	**.40**
2255	H	Slotted, Ind...	10	100	40	**.40**

SINGLE POLE—WITH METAL COVERS

10 Amperes, 125 Volts
5 Amperes, 250 Volts

Diameter of base, $2\frac{7}{16}$ inches; height over cover, $1\frac{9}{16}$ inches; height over handle, $2\frac{1}{4}$ inches; supporting screw spacings, $1\frac{3}{4}$ inches. Nos. 2221 and 2036 can be supplied at no advance in price, on base $2\frac{1}{4}$ inches diameter.

Mfrs. No.	Schedule	Description	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
2221	H	Solid	10	100	50	**$0.48**
2001	H	Slotted	10	100	50	**.48**
2036	H	Solid, Ind.	10	100	50	**.54**
2048	H	Slotted, Ind...	10	100	50	**.54**

SINGLE POLE—WITH METAL COVERS

5 Amperes, 125 Volts
3 Amperes, 250 Volts

The metal cover extends over and covers the porcelain base. Diameter cover, $1\frac{29}{32}$ inches; height over cover, $1\frac{13}{32}$ inches; height over handle, $1\frac{15}{16}$ inches; screw spacings, $1\frac{3}{8}$ inches. Standard finish metal covers, polished nickel.

Mfrs. No.	Schedule	Description	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
2429	H	Solid	10	100	31	**$0.36**
2430	H	Solid, Ind.	10	100	35	**.40**

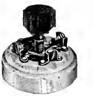
Note.—For covers in any other finish than polished nickel, except gold, add to list **$0.10** each. Rotary switches can be converted into lock switches by removing handles and substituting No. 2384 universal rotary switch lock attachment.

PERKINS SURFACE SWITCHES

N. E. C. Standard

THREE POINT SWITCHES

With Metal Covers and Porcelain Bases



With metal covers and porcelain bases; with No. 2777 composition handle. Diameter base, 2 inches; height over cover, $1\frac{13}{32}$ inches; height over handle, $1\frac{15}{16}$ inches. Supporting screw spacings, $1\frac{3}{8}$ inches. No. 2455 can be supplied, on special order, at no advance in price, on a base $1\frac{3}{4}$ inches diameter.

3 Amperes, 125 Volts—1 Ampere, 250 Volts

Mfrs. No	Schedule	Description	Carton	Std. Pkg.	Wt.Lb. Std Pkg.	Price Each
2455	H	Solid	10	100	37	**$0.48**
2456	H	Slotted	10	100	37	**.48**

5 Amperes, 125 Volts—3 Amperes, 250 Volts

Mfrs. No	Schedule	Description	Carton	Std. Pkg.	Wt.Lb. Std Pkg.	Price Each
2175	H	Solid	10	100	40	**.56**
2027	H	Slotted	10	100	40	**.56**

Diameter base, $2\frac{1}{4}$ inches; height over cover, $1\frac{13}{32}$ inches; height over handle, $1\frac{15}{16}$ inches; supporting screw spacings, $1\frac{1}{2}$ inches.

10 Amperes, 125 Volts—5 Amperes, 250 Volts

Mfrs. No	Schedule	Description	Carton	Std. Pkg.	Wt.Lb. Std Pkg.	Price Each
2176	H	Solid	10	50	25	**.76**
2030	H	Slotted	10	50	25	**.76**

Diameter base, $2\frac{7}{16}$ inches; height over cover, $1\frac{9}{16}$ inches; height over handle, $2\frac{1}{4}$ inches. Supporting screw spacings, $1\frac{11}{16}$ inches.

3 Amperes, 125 Volts—1 Ampere, 250 Volts

Mfrs. No	Schedule	Description	Carton	Std. Pkg.	Wt.Lb. Std Pkg.	Price Each
2615	H	Solid	10	100	35	**.56**

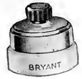
The metal extends over and covers porcelain base.

Diameter cover, $1\frac{29}{32}$ inches; height over cover, $1\frac{17}{32}$ inches; height over handle, $2\frac{1}{16}$ inches. Supporting screw spacings, $1\frac{3}{8}$ inches.

FOUR-POINT SWITCHES

With Metal Covers and Porcelain Bases

Four-point switches are used in connection with two three-point switches where current is to be controlled from any one of more than two points. A four-point switch is installed between the three-point switches at each additional point. Four-point switches can also be used individually as pole-changing switches.



Diameter base, $2\frac{7}{16}$ inches; height over cover, $1\frac{9}{16}$ inches; height over handle, $2\frac{1}{4}$ inches. Supporting screw spacings, $1\frac{3}{4}$ inches. No. 2183 can be supplied at no advance in price on base $2\frac{1}{4}$ inches diameter.

5 Amperes, 125 Volts—2 Amperes, 250 Volts

Mfrs. No.	Schedule	Description	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
2183	H	Solid	10	30	15	**$0.86**
2033	H	Slotted	10	30	15	**.86**

3 Amperes, 125 Volts—1 Ampere, 250 Volts

Mfrs. No.	Schedule	Description	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
2616	H	Solid	10	50	15	**.64**

Metal extends over and covers the porcelain base.

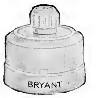
Diameter cover, $1\frac{29}{32}$ inches; height over cover, $1\frac{17}{32}$ inches; height over handle, $2\frac{1}{16}$ inches. Supporting screw spacings, $1\frac{3}{8}$ inches.

PERKINS SURFACE SWITCHES

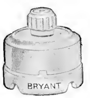
N. E. C. Standard

PORCELAIN BASES, COVERS AND HANDLES

With No. 2781 Porcelain Handle



Solid



Slotted

SINGLE-POLE

5 Amperes, 125 Volts—3 Amperes, 250 Volts

Mfrs. No.	Schedule	Description	Carton	Std. Pkg	Wt.Lb. Std.Pkg.	Price Each
2601	H	Solid ....*	1	100	47	**$0.32**
2602	H	Slotted ....*	1	100	47	**.32**
2603	H	Solid, Ind. ....*	1	100	47	**.36**
2604	H	Slotted, Ind...*	1	100	47	**.36**

10 Amperes, 125 Volts—5 Amperes, 250 Volts

Mfrs. No.	Schedule	Description	Carton	Std. Pkg	Wt.Lb. Std.Pkg.	Price Each
2141	H	Solid ....‡	1	30	20	**$0.56**
2753	H	Slotted ....‡	1	30	20	**.56**
2435	H	Solid, Ind. ....‡	1	30	20	**.62**
2754	H	Slotted, Ind...‡	1	30	20	**.62**

DOUBLE POLE

5 Amperes, 125 Volts—5 Amperes, 250 Volts

Mfrs. No.	Schedule	Description	Carton	Std. Pkg	Wt.Lb. Std.Pkg.	Price Each
2607	H	Solid ....*	1	10	5	**$0.60**
2608	H	Slotted ....*	1	10	5	**.60**
2609	H	Solid, Ind. ....*	1	10	5	**.68**
2610	H	Slotted, Ind...*	1	10	5	**.68**

10 Amperes, 125 Volts—10 Amperes, 250 Volts

Mfrs. No.	Schedule	Description	Carton	Std. Pkg	Wt.Lb. Std.Pkg.	Price Each
2139	H	Solid ....‡	1	10	7	**$0.74**
2763	H	Slotted ....‡	1	10	7	**.74**
2438	H	Solid, Ind. ....‡	1	10	7	**.84**
2764	H	Slotted, Ind...‡	1	10	7	**.84**

THREE-POINT

5 Amperes, 125 Volts—3 Amperes, 250 Volts

Mfrs. No.	Schedule	Description	Carton	Std. Pkg	Wt.Lb. Std.Pkg.	Price Each
2605	H	Solid ....*	1	10	5	**$0.52**
2606	H	Slotted ....*	1	10	5	**.52**

10 Amperes, 125 Volts—5 Amperes, 250 Volts

Mfrs. No.	Schedule	Description	Carton	Std. Pkg	Wt.Lb. Std.Pkg.	Price Each
2140	H	Solid ....‡	1	10	7	**$0.84**
2757	H	Slotted ....‡	1	10	7	**.84**

FOUR-POINT

5 Amperes, 125 Volts—2 Amperes, 250 Volts

Mfrs. No.	Schedule	Description	Carton	Std. Pkg	Wt.Lb. Std.Pkg.	Price Each
2142	H	Solid ....‡	1	10	7	**$0.94**
2758	H	Slotted ....‡	1	10	1	**.94**

TWO-CIRCUIT ELECTROLIER

10 Amperes, 125 Volts—5 Amperes, 250 Volts
Operating 1, 2, 1 and 2, Off

Mfrs. No.	Schedule	Description	Carton	Std. Pkg	Wt.Lb. Std.Pkg.	Price Each
2264	H	Solid ....‡	1	10	7	**$0.84**
2759	H	Slotted ....‡	1	10	7	**.84**
2436	H	Solid, Ind. ....‡	1	10	7	**.94**
2760	H	Slotted, Ind...‡	1	10	7	**.94**

THREE-CIRCUIT ELECTROLIER

10 Amperes, 125 Volts—5 Amperes, 250 Volts
Operating 1, 1 and 2, 1 and 2 and 3, Off

Mfrs. No.	Schedule	Description	Carton	Std. Pkg	Wt.Lb. Std.Pkg.	Price Each
2263	H	Solid ....‡	1	10	7	**$0.93**
2761	H	Slotted ....‡	1	10	7	**.98**
2437	H	Solid, Ind. ....‡	1	10	7	**1.08**
2762	H	Slotted, ind...‡	1	10	7	**1.08**

*Diameter of base, 2 inches. Height over cover, $1\frac{9}{16}$ inches. Height over handle, $2\frac{5}{16}$ inches. Supporting screw spacings, $1\frac{5}{8}$ inches.

‡Diameter of base, $2\frac{1}{2}$ inches. Height over cover, $1\frac{7}{8}$ inches. Height over handle, $2\frac{5}{8}$ inches. Supporting screw spacings, $1\frac{3}{4}$ inches.

PERKINS SURFACE SWITCHES

N. E. C. Standard

With Metal Covers and Porcelain Bases

SINGLE POLE—HEATER CONTROL

Single-pole heater switches, indicating. Porcelain bases and handles, metal covers, bakelite insulation. Series-parallel operating high, medium, low, off.

Diameter of base, $2\frac{7}{16}$ inches. Height over flat cover, $1\frac{1}{2}$ inches. Height over angle dial cover, $1\frac{9}{16}$ inches. Height over handle of switch with flat cover, $2\frac{1}{4}$ inches. Height over handle of switch with angle dial cover, $2\frac{5}{16}$ inches. Supporting screw spacings, $1\frac{3}{4}$ inches.

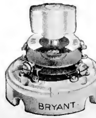
15 Amperes, 125 Volts—10 Amperes, 250 Volts
Flat Cover

Mfrs. No.	Schedule	Description	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
2669	H	Solid	1	10	6	**$1.00**
2670	H	Slotted	1	10	6	**1.00**
		Angle Dial Cover				
2619	H	Solid	1	10	6	**1.00**
2620	H	Slotted	1	10	6	**1.00**

20 Amperes, 125 Volts—10 Amperes, 250 Volts
Flat Cover

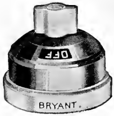
Mfrs. No.	Schedule	Description	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
2635	H	Solid	1	10	6	**1.00**
2636	H	Slotted	1	10	6	**1.00**

Diameter base, $3\frac{1}{32}$ inches. Height over flat cover, $1\frac{7}{8}$ inches. Height over handle of switch with flat cover, $2\frac{13}{16}$ inches. Height over angle dial cover, $1\frac{15}{16}$ inches. Height over handle of switch with angle dial cover, $2\frac{7}{8}$ inches. Supporting screw spacings, $2\frac{3}{16}$ inches.



20 Amperes, 125 Volts—15 Amperes, 250 Volts
Flat Cover

Mfrs. No.	Schedule	Description	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
2672	H	Solid	1	10	9	**$1.65**
2673	H	Slotted	1	10	9	**1.65**
		Angle Dial Cover				
2679	H	Solid	1	10	9	**1.65**
2680	H	Slotted	1	10	9	**1.65**



Diameter base, $3\frac{9}{16}$ inches. Height over flat cover, $1\frac{15}{16}$ inches. Height over handle of switch with flat cover, $2\frac{7}{8}$ inches. Height over angle dial cover, 2 inches. Height over handle of switch with angle dial cover, $2\frac{15}{16}$ inches. Supporting screw spacings, $2\frac{3}{4}$ inches.

40 Amperes, 125 Volts—20 Amperes, 250 Volts
Flat Cover

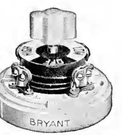
Mfrs. No.	Schedule	Description	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
2675	H	Solid	1	10	17	**$2.00**
2676	H	Slotted	1	10	17	**2.00**
		Angle Dial Cover				
2621	H	Solid	1	10	17	**2.00**
2622	H	Slotted	1	10	17	**2.00**

PERKINS SURFACE SWITCHES

N. E. C. Standard

With Metal Covers and Porcelain Bases

SINGLE POLE—HEATER CONTROL



Single-Pole heater switches, indicating. Porcelain bases and handles, metal covers, bakelite insulation. Series - parallel operating high, medium, low, off. With No. 2783 porcelain handle. With flat cover.

Mfrs. No.	Schedule	Description	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
		15 Amperes, 125 Volts—10 Amperes, 250 Volts				
2570	H	Solid	1	10	6	**$1.00**
2671	H	Slotted	1	10	6	**1.00**

Diameter base, $2\frac{7}{16}$; height over cover, $1\frac{9}{16}$; over handle, $2\frac{5}{16}$. Screw spacings, $2\frac{3}{16}$ inches.

Mfrs. No.	Schedule	Description	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
		20 Amperes, 125 Volts—15 Amperes, 250 Volts				
2591	H	Solid	1	10	9	**$1.65**
2674	H	Slotted	1	10	9	**1.65**

Diameter base, $2\frac{1}{32}$; height over cover, $1\frac{7}{8}$; over handle, $2\frac{13}{16}$. Screw spacings, $2\frac{3}{16}$ inches.

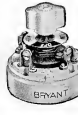
Mfrs. No.	Schedule	Description	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
		30 Amperes, 125 Volts—20 Amperes, 250 Volts				
2571	H	Solid	1	10	17	**2.00**
		40 Amperes, 125 Volts—20 Amperes, 250 Volts				
2677	H	Slotted	1	10	17	**2.00**

Diameter base, $3\frac{9}{16}$; height over cover, $1\frac{15}{16}$; over handle, $2\frac{7}{8}$. Screw spacings, $2\frac{3}{4}$ inches.

MULTIPLE HEATER CONTROL SWITCH

Operating Low, Medium, High, Off.

15 Amperes, 250 Volts



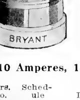
Used in connection with heaters having two coils, one larger than the other. 1st position: small coil on. 2d position: small coil off, large coil on. 3d position: both coils connected in parallel. 4th position: both coils off. Indicating with No. 2783 porcelain handle.

With Flat Cover

Mfrs. No.	Schedule	Description	Carton	Std. Pkg.	Wt.Lb. Std Pkg.	Price Each
2668	H	Solid	1	10	6	**$1.00**
2532	H	Slotted	1	10	6	**1.00**

Diameter base, $2\frac{7}{16}$; height over cover, $1\frac{9}{16}$; over handle, $2\frac{5}{16}$. Screw spacings, $1\frac{3}{4}$ inches.

SINGLE POLE—Operating On, Off



Indicating. Nos. 2637 and 2638 have No. 2783 porcelain handle. Nos. 2695 and 2696 have No. 2825 arrow indicating porcelain handle. Diameter base, $2\frac{7}{16}$ inches; height over cover, $1\frac{11}{16}$ inches; height over handle, $2\frac{7}{16}$ inches. Supporting screw spacings, $1\frac{3}{4}$ inches.

10 Amperes, 125 Volts—5 Amperes, 250 Volts
Angle Dial Cover

Mfrs. No.	Schedule	Description	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
2637	H	Solid	1	10	6	**$0.80**
2638	H	Slotted	1	10	6	**.80**
		Flat Cover				
2605	H	Solid	1	10	6	**.80**
2696	H	Slotted	1	10	6	**.80**

BRYANT RANGE SWITCHES

N. E. C. Standard

DOUBLE POLE RANGE SWITCHES
SWITCH MECHANISM UNITS ONLY—SERIES PARALLEL

Complete with mounting screws but without cover. Series-parallel operating high, medium, low, off. With No. 2822 porcelain indicating handle. No. 2815 is for use with No. 2804 sub-base and No. 2816 cover to make No. 2800 switch.

20 Amperes, 125 Volts—10 Amperes, 250 Volts
Clockwise Rotation

Mfrs. No	Schedule	Carton	Std. Pkg	Wt.Lb Std.Pkg.	Price Each
2802*	H	1	10	8	**$1.00**

Diameter base, 2⅝ inches; height under handle, 1⅝ inches; height over handle, 2 7/16 inches.

2815	H	1	10	8	**1.00**

Diameter base, 2⅝ inches; height under handle, 1 7/16 inches; height over handle, 2¼ inches.

Complete with mounting screws but without cover. Series-parallel operating high, medium, low, off. With No. 3822 porcelain indicating handle. No. 3815 is for use with No. 2804 sub-base and No. 3816 cover to make No. 3800 switch.

30 Amperes, 125 Volts—15 Amperes, 250 Volts
Reversible Rotation

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
3802*	H	1	10	9	**$1.10**

Diameter base, 2⅝ inches; height under handle, 2 inches; height over handle, 3 inches.

3815	H	1	10	9	**1.10**

Diameter base, 2⅝ inches; height under handle, 1 25/32 inches; height over handle, 2 25/32 inches.

DOUBLE POLE—Operating On, Off, On, Off

Complete with mounting screws but without cover. No. 2819 is intended for use with No. 2804 sub-base and No. 2820 cover to make No. 2818 switch. No. 3819 is intended for use with No. 2804 sub-base and No. 3820 cover to make No. 3813 switch.

20 Amperes, 125 Volts—10 Amperes, 250 Volts
Clockwise Rotation

Mfrs. No.	Schedule	Carton	Std. Pkg	Wt Lb. Std Pkg	Price Each
2819†	H	1	10	20	**$1.00**

Diameter base, 2⅝ inches; height under handle, 1 7/16 inches; height over handle, 2¼ inches.

2821*	H	1	10	7	**1.00**

Diameter base, 2⅝ inches; height under handle, 1⅝ inches; height over handle, 2 7/16 inches.

30 Amperes, 125 Volts—15 Amperes, 250 Volts
Reversible Rotation

3819†	H	1	10	20	**1.00**

Diameter base, 2⅝ inches; height under handle, 1 25/32 inches; height over handle, 2 25/32 inches.

3821*	H	1	10	9	**1.10**

Diameter base, 2⅝ inches; height under handle, 2 inches; height over handle, 3 inches.

†Can be used with sub-bases Nos. 2804, 2806, 3806 and 2807. When mounted on any but No. 2804 sub-base, cannot be used with a cover.

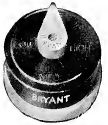
*Can be used with sub-bases Nos. 2804, 2806, 3806 and 2807 but is not intended for use with any cover.

BRYANT RANGE SWITCHES

N. E. C. Standard

DOUBLE POLE RANGE SWITCHES

Series Parallel—Operating High, Medium, Low, Off



Complete with porcelain bases and indicating handles, bakelite insulation. For mounting with separable mechanism. Black metal cover with embossed dial indications. Nos. 2800 and 2818 with No. 2822 handle. Nos. 3800 and 3818 with No. 3822 handle.

Diameter all range switches: base, 3 inches; cover, 2¾ inches. Supporting screw spacings, 1 11/16 inches.

20 Amperes, 125 Volts—10 Amperes, 250 Volts
Clockwise Rotation

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
2800	H	1	10	14	**$1.60**

Height over cover, 2 3/32 inches; height over handle, 2 15/16 inches. Consists of No. 2815 switch mechanism, No. 2804 sub-base and No. 2816 cover.

30 Amperes, 125 Volts—15 Amperes, 250 Volts
Reversible Rotation

3800	H	1	10	20	**1.70**

Height over cover, 2½ inches; height over handle, 3½ inches. Consists of No. 3815 switch mechanism, No. 2804 sub-base and No. 3816 cover.

ON AND OFF—DOUBLE POLE

Operating On, Off, On, Off

20 Amperes, 125 Volts—10 Amperes, 250 Volts
Clockwise Rotation

2818	H	1	10	14	**1.60**

Height over cover, 2 3/32 inches; height over handle, 2 15/16 inches. Consists of No. 2819 switch mechanism, No. 2804 sub-base and No. 2820 cover.

30 Amperes, 125 Volts—15 Amperes, 250 Volts
Reversible Rotation

3813	H	1	10	14	**1.70**

Height over cover, 2½ inches; height over handle, 3½ inches. Consists of No. 3819 switch mechanism, No. 2804 sub-base and No. 3820 cover.

DOUBLE POLE SUB-BASE—FUSELESS

30 Amperes, 125 Volts—15 Amperes, 250 Volts

Round porcelain sub-base. Can be used with Nos. 2802, 3802, 2815, 3815, 2819 and 3819 mechanisms and with Nos. 2816, 3816, 2820 and 3820 covers. Nos. 2802 and 3802 cannot be used with covers. Diameter, 3 inches; thickness, 11/16 inches. Supporting screw spacings, 1 11/16 inches.

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb Std.Pkg.	Price Each
2804	H	1	10	6	**$0.30**

BRYANT RANGE SWITCHES

N. E. C. Standard

BRASS COVERS FOR NO. 2804 SUB-BASE

No. 2816

No. 2820

Brass covers, black finish with embossed dial indieations and insulation lining. Can be used only with No. 2804 sub-base.

With High, Medium, Low, Off Indications

Mfrs. No.	Schedule	Diam. in.	Height In.	Carton	Std. Pkg.	Wt Lb. Std.Pkg.	Price Each
2816	H	2¾	$1\frac{13}{32}$	1	10	3	**$0.30**
3816	H	2¾	$1\frac{25}{32}$	1	10	3	**.30**
			With On, Off, On, Off Indications				
2820	H	2¾	$1\frac{13}{32}$	1	10	3	**.30**
3820	H	2¾	$1\frac{25}{32}$	1	10	3	**.30**

The standard finish is black laequer whieh will be furnished when no finish is speeified. For speeial finishes, except gold, add **$0.10** list each.

HANDLES FOR RANGE SWITCHES

N. E. C. Standard

INDICATING—PORCELAIN

No. 2822

No. 2823

Unless otherwise speeified Nos. 2800, 2802, 2815, 2818 and 2820 will be furnished with No. 2822 poreelain handles, and Nos. 3800, 3802, 3815 and 3818 will be furnished with No. 3822 porcelain handles.

Without Direction Indicating Arrow

Mfrs. No.	Schedule	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
2822	H	100	7	**$0.10**
		With Direction Indicating Arrow		
2823	H	100	7	**.15**
		For No. 3800 Series Reversible Switches		
3822	H	100	7	**.15**
		Arrow Indicating—White Point, Black Tail		
2825	H	100	7	**.15**

INDEX PROTECTIVE HANDLES—PORCELAIN

For Non-Reversible Switches

Index handles are made to turn 180° in a eountereloekwise direction without turning the eenter post of the switeh, and to spring baek to indieating position when released. Nos. 661 and 664 eannot be interehanged with other standard handles, but range switehes Nos. 2802, 2817 and 2821 ean be fitted with them when speeified.

With Direction Indicating Arrow

Mfrs. No.	Schedule	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
661	H	100	9	**$0.20**
		Without Direction Indicating Arrow		
664	H	100	9	**.20**

PERKINS ROTARY SWITCH HANDLES

Schedule H—N. E. C. Standard

All Perkins rotary switch handles, lock attaehments and switch stems are threaded alike, except for No. 2597 expulsion type surfaee switeh and Bryant heater and range switehes, regardless of size of switeh. The handles differ in external shape and size for purposes of leverage appropriate to the size of the switeh. In an emergeney, any available handle ean be attaehed to any switch.

When switehes are ordered without handles deduct **$0.02**. When ordered with metal handles add to list **$0.06**.

ROUND FOR ROTARY SWITCHES

No. 2777

No. 2778

No. 2781

No. 2782

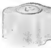
Composition

Mfrs. No.	Size Switch, Amperes 125 & 250V.	Size Switch, Amperes 250 & 600V.	Std. Pkg.	Price Each
2777	3 and 5	....	100	**$0.06**
2778	10	....	100	**.06**
		White Porcelain		
2781	3, 5 & 10	3 and 5	100	**.06**
		Brown Porcelain		
2782	....	3	100	**.06**

FLAT FOR ROTARY SWITCHES

No. 2779

No. 2780



No. 2783

No. 2785

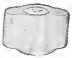
Composition

Mfrs. No.	Size Switch, Amperes 125 & 250V.	Size Switch, Amperes 250 & 600V.	Std. Pkg.	Price Each
2779	20 Surfaee & all Flush	....	100	**$0.06**
2780	30 and 50	....	100	**.06**
		White Porcelain		
2783	10 and.15	....	100	**.06**
2784	20 and 30	10 and 20	100	**.06**
		Flat—Nickel Plated Brass		
2785	All	All	100	**.12**

SECURITY RATCHET-LOCK TYPE

No. 2775

No. 2797



No. 2808

These handles may be substituted for the standard round or flat type on any rotary switehes listed. They are a'taehed in the usual manner but cannot be removed exeept with a serew driver. The ratchet prineiple is employed so that turning handle backward does no damage either to handle or switch. For switches fitted with these handles add to list **$0.05.**

Round Composition

Mfrs. No.	Schedule	Substitute for No.	Std. Pkg.	Price Each
2775	H	2777 and 2778	100	**$0.10**
		White Porcelain		
2776	H	2781	100	**.10**
		Flat—White Porcelain		
2797	H	2783	100	**.10**
2808	H	2784	100	**.10**
		Flat—Composition		
2824	H	2780	100	**.10**

PERKINS PULL SWITCHES

Schedule H—N. E. C. Standard

Polished nickel finish will be supplied when no finish is specified. Any other finish, except gold, add **$0.10** list each. Each switch supplied with 10 feet of linen cord and large black composition ball. Extra cord **$0.01** list per foot. Cord in bulk per foot **$0.01** list. Schedule H, standard package quantity, 100 feet. Extra composition balls each **$0.06** list. Schedule H, standard package quantity, 250.

CEILING TYPE—NON-INDICATING

Porcelain Bases and Metal Covers

Mfrs. No.	Amperes 125V.	Amperes 250V.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Each
2387	10	5	S-P., Solid	10	30	22	**$1.00**
2309	10	5	S-P., Slotted	10	30	22	**1.00**
2396	10	10	D-P., Solid	10	10	8	**1.18**
2314	10	10	D-P., Slotted	10	10	8	**1.18**
2388	10	5	3-Pt., Solid	10	10	8	**1.18**
2310	10	5	3-Pt., Slotted	10	10	8	**1.18**
2389	5	2	4-Pt., Solid	1	10	8	**1.18**
2311	5	2	4-Pt., Slotted	1	10	8	**1.18**
			Electrolier, Two-Circuit				
			Operating 1, 2, 1 and 2, Off				
2390	10	5	Solid	1	10	8	**1.18**
2312	10	5	Slotted	1	10	8	**1.18**
			Electrolier, Three-Circuit				
			Operating 1, 1 and 2, 1 and 2 and 3, Off				
2395	10	5	Solid	1	10	8	**1.18**
2313	10	5	Slotted	1	10	8	**1.18**
			Three Speed Motor Control				
			Operating 1, 2, 3, Off				
2863	10	5	Solid	1	10	8	**1.18**

Diameter base, 2¼ inches; height over cover, 2⅛ inches; supporting screw spacings, 1⅝ inches.

For 3¼ and 4 Inch Standard Outlet Boxes

Mfrs. No.	Amperes 125V.	Amperes 250V.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Each
2769	10	5	Single-Pole	1	10	20	**1.25**
2770	10	10	Double-Pole	1	10	20	**1.43**

Diameter base, 4⅝ inches; supporting screw spacings, 2¾ and 3½ inches.

For Adaptiboxes—Unilets—Pipe Taplets*

Mfrs. No.	Amperes 125V.	Amperes 250V.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Each
2694	10	5	Single-Pole	10	20	15	**1.00**

*For type 500 Adaptiboxes, types GN, HM and W Octagonal Unilets and Form 10 round opening Pipe Taplets.

Diameter base, 4⅝ inches; supporting screw spacings, 2$\frac{5}{16}$ inches.

WALL TYPE—NON-INDICATING

Porcelain Bases and Metal Covers

Mfrs. No.	Amperes 125V.	Amperes 250V.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Each
2546	10	5	S-P., Solid	10	30	22	**$1.00**
2547	10	5	S-P., Slotted	10	30	22	**1.00**
2565	10	10	D-P., Solid	10	10	8	**1.18**
2566	10	10	D-P., Slotted	10	10	8	**1.18**
2549	10	5	3-Pt., Slotted	10	10	8	**1.18**
2560	5	2	4-Pt., Slotted	1	10	8	**1.18**
			Electrolier, Two-Circuit				
			Operating 1, 2, 1 and 2, Off				
2562	10	5	Slotted	1	10	8	**1.18**

Diameter base, 2$\frac{9}{16}$ inches; height over cover, 2⅛ inches; supporting screw spacings, 1¾ inches.

BRYANT PULL SWITCHES

N. E. C. Standard

PORCELAIN BASE PULL SWITCHES

With threaded chain guide and knurled nut for fastening to fixture pan. Diameter, 2$\frac{9}{32}$ inches; thickness, 1$\frac{9}{32}$ inches. Length threaded chain guide, ½ inch. Diameter hole needed in pan $\frac{15}{32}$ inch. Equipped with short No. 6 chain, 10 feet small linen cord and small composition ball.

Single Pole

Mfrs. No.	Amperes 125V.	Amperes 250V.	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
670	5	3	10	100	45	**$0.70**
			Electrolier, Two Circuit—1, 2, 1 & 2, Off			
660	5	2	10	100	55	**.75**

PERKINS PULL AND PUSH SWITCHES

N. E. C. Standard

TYPE O PULL SWITCHES

The standard finish is brush brass which will be furnished when no finish is specified. For special finishes, except gold, add to list **$0.10** each. Can be furnished with Undark luminous pendant at an addition to list of **$0.28** each. Each switch equipped with 10 feet of small linen cord and small composition ball. Extra cord **$0.01** list per foot, cord in bulk per foot, **$0.01** list; Schedule H standard package quantity 100 feet. Extra composition balls each **$0.06** list, Schedule H, standard package quantity, 250.

WITH ⅜ INCH CAP

Mfrs. No.	Schedule	Amperes 125V.	Amperes 250V.	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
			Single Pole				
2473	H	10	5	10	30	18	**$1.30**
			Double Pole				
2478	H	10	5	10	10	5	**1.30**
			Three Point				
2474	H	10	5	10	10	5	**1.30**
			Four Point				
2475	H	5	2	10	10	5	**1.30**
			Electrolier and Motor Control				
			Two Circuit—1, 2, 1 & 2, Off				
2476	H	5	2	10	10	5	**1.30**
			Three Circuit—1, 1 & 2, 1 & 2 & 3, Off				
2477	H	5	2	10	10	5	**1.30**
			Two Speed—1, 2, Off				
2479	H	10	5	10	10	5	**1.30**
			Three Speed—1, 2, 3, Off				
2480	H	10	5	10	10	5	**1.30**

WITH PENDANT CAP

Mfrs. No.	Schedule	Amperes 125V.	Amperes 250V.	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
			Single Pole				
2440	H	10	5	10	30	18	**$1.20**
			Double Pole				
2421	H	10	5	10	10	5	**1.20**
			Three Point				
2417	H	10	5	10	10	5	**1.20**
			Four Point				
2418	H	5	2	10	10	5	**1.20**

Electrolier and Motor Control

Two Circuit—1, 2, 1 & 2, Off

Mfrs. No.	Schedule	Amperes 125V.	Amperes 250V.	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
2419	H	5	2	10	10	5	**$1.20**
			Three Circuit—1, 1 & 2, 1 & 2 & 3, Off				
2420	H	5	2	10	10	5	**1.20**
			Two Speed—1, 2, Off				
2422	H	10	5	10	10	5	**1.20**
			Three Speed—1, 2, 3, Off				
2423	H	10	5	10	10	5	**1.20**

PERKINS PENDENT SWITCHES

N. E. C. Standard

TYPE T PENDENT SWITCHES SINGLE POLE

The standard finish is brush brass which will be furnished when no finish is specified. For special finishes, except gold, add to list **$0.10** each.

Push Through Buttons

Mfrs. No.	Schedule	Amperes 125V.	Amperes 250V.	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
			Pendent Cap				
2572	H	6	3	10	100	20	**$0.50**
			⅛ Inch Cap				
2573	H	6	3	10	100	22	**.50**
			⅜ Inch Cap				
2574	H	6	3	10	100	24	**.60**
			Two Buttons on Bottom				
			Pendent Cap				
2370	H	6	3	10	100	33	**.50**
			⅛ Inch Cap				
2250	H	6	3	10	100	36	**.50**
			⅜ Inch Cap				
2270	H	6	3	10	100	40	**.60**
			Pendent Cap				
2359	H	10	5	10	100	46	**.80**
			⅛ Inch Cap				
2353	H	10	5	10	100	48	**.80**
			⅜ Inch Cap				
2354	H	10	5	10	100	50	**.90**
			Self-Restoring—Two Buttons on Bottom				
			Pendent Cap, Normally Open				
2786	H	6	3	10	30	7	**.70**
			Pendent Cap, Normally Closed				
2789	H	6	3	10	30	7	**.70**

PERKINS STRAIGHT THROUGH SWITCHES

N. E. C. Standard

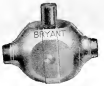
The standard finish is polished nickel which will be supplied when finish is not specified. For any other finish, except gold, add to list **$0.10**.

TYPE T SINGLE POLE

6 Amp., 125 Volt—3 Amp., 250 Volt With $\frac{11}{32}$ Inch Cord Hole

Mfrs. No.	Schedule	Carton	Std Pkg.	Pkg. Wt.	Price Each
2592	H	10	50	14	**$0.60**

TYPE O SWITCHES



The indication on Nos. 2490 and 2678 is obtained by a dial that is visible through a hole in the end of the button.

DOUBLE POLE

Mfrs. No.	Schedule	Amperes 125V.	Amperes 250V.	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
			Non-Indicating				
2454	H	10	5	10	30	17	**$1.20**
			Indicating				
2490	H	10	5	10	30	17	**1.20**
			SINGLE POLE—SERIES PARALLEL				
			Operating High, Medium, Low, Off Indicating				
2678	H	5	2	10	10	5	**1.30**

BRYANT TUMBLER TYPE SURFACE SWITCHES

Schedule H—N. E. C. Standard

With porcelain base and metal covers; black composition handle; indications are stamped on covers. Polished nickel brass handle can be furnished on special order without extra charge.

Solid Base Mfrs. No.	Solid Base Price Each	Amperes 125V.	Amperes 250V.	Wt.Lb. Std.Pkg.	Slotted Base Mfrs. No.	Slotted Base Price Each
			Single Pole			
2931	**$0.32**	5	3	30	**2941**	**$0.32**
			Double Pole			
2932	**.56**	5	5	30	**2942**	**.56**
			Three Point			
2933	**.56**	3	1	30	**2943**	**.56**

Carton, 10; standard package, 100.

PERKINS PANEL BOARD SWITCHES

N. E. C. Standard

POLISHED COMPOSITION COVER AND COMPOSITION BASE

No. 2596

No. 2645

Designed to be attached directly to bus bars of panel boards. Spacings are correct for 125 volt panels, in which the bus bars are spaced ¾ inch apart as required by the National Electrical Code. The switches are also suitable for 250 volt panels, in which case bus bars are turned inward to reach the switch, since the Code specifies a minimum spacing of 1¼ inches between bus bars for this voltage.

The switch is supported mechanically and connected electrically by machine screws which bind against the switch contacts and thread into tapped holes in the bus bars. These screws are spaced 1½ inches on centers both across opposite polarity and across the break.

The standard finish of the cover holding screws and the card holder is polished copper, which will be shipped when the finish is not specified. For special finishes add to list **$0.10.**

Switch covers are 2¼ inches square. Rotary covers are 1½ inches high and to top of handle 2¼ inches. Push covers are $1\frac{13}{16}$ inches high and to end of out button 2⅛ inches.

For switches less cover, deduct from list **$0.25.** Nos. 2645, 2646, 2767 and 2814 can be fitted with luminous buttons, add **$0.25** list each.

DOUBLE POLE

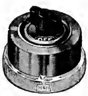
Mfrs. No.	Schedule	Amperes 125V.	Amperes 250V.	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
			Rotary—Indicating				
2596	H	10	10	10	50	30	**$1.00**
			Push Switch				
2645	H	10	10	10	50	30	**1.00**
2646	H	20	10	10	50	30	**1.10**
			THREE POINT				
			Push Switch				
2767	H	10	5	10	50	30	**1.00**
			COVERS FOR ABOVE				
Cover Only, Either Style........					50	....	**.30**
			IN WHITE PORCELAIN CUP—NO COVER				
			Double Pole, Push				
2814	H	10	10	10	50	40	**.80**

Length of porcelain cup, $2\frac{9}{16}$ inches; width, 2¼ inches; depth, 1⅝ inches. Supporting and connecting screw spacings, $2\frac{1}{16}$ inches.

H & H SURFACE SWITCHES
N. E. C. Standard—Schedule S
SINGLE POLE

*Small Size

5 Amp., 125 V.—3 Amp., 250 V.


No. 2162

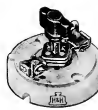
Mfrs. No.	Style	Base	Wt.Lb. Std.Pkg	Price Each
2148	Solid	Non-Ind.	69	**$0.28**
2161	Slotted	Non-Ind.	69	**.28**
2162	Solid	Ind.	69	**.32**
2163	Slotted	Ind.	69	**.32**

Diam. of base, 2 in. Supporting screws spaced $1\frac{13}{32}$ in. on centers. Height over all $1\frac{29}{32}$ in.
Carton, 10. Std. Pkg., 250.

***5 Amp., 125 V.—3 Amp., 250 V.**

Mfrs No.	Style	Base	Wt.Lb. Std.Pkg.	Price Each
20	Solid	Non-Ind	31	**$0.36**
120	Slotted	Non-Ind.	31	**.36**
220	Solid	Ind.	31	**.40**
320	Slotted	Ind.	31	**.40**

Diam. of base, $2\frac{1}{8}$ in. Supporting screws spaced $1\frac{7}{16}$ in. on centers. Height over all, $1\frac{3}{4}$ in.
Carton, 10. Std. Pkg., 100.


Nos. 120 and 121

***10 Amp., 125 Volts—5 Amp., 250 Volts**

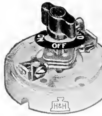
Mfrs. No.	Style	Base	Carton	Std. Pkg	Wt. Lb. Std.Pkg.	Price Each
21	Solid	Non-Ind.	10	100	50	**$0.48**
121	Slotted	Non-Ind.	10	100	50	**.48**
221	Solid	Ind.	10	100	50	**.54**
321	Slotted	Ind.	10	100	50	**.54**

Diam. of base, $2\frac{15}{32}$ in. Supporting screws spaced $1\frac{3}{4}$ in. on centers. Height over all, $2\frac{15}{16}$ in.

***Quadruple Break—10 Amp., 250 Volts**

2983	Solid	Non-Ind.	10	100	50	**.66**
2984	Slotted	Non-Ind.	10	100	50	**.66**
2985	Solid	Ind.	10	100	50	**.76**
2986	Slotted	Ind.	10	100	50	**.76**

Diam. of base, $2\frac{15}{32}$ in. Supporting screws spaced $1\frac{3}{4}$ in. on centers. Height over all, $2\frac{1}{8}$ in.


No. 331

20 Amp., 125 Volts

Mfrs. No.	Style	Base	Price Each
31	Solid	Non-Ind.	**$0.90**
131	Slotted	Non-Ind.	**.90**
231	Solid	Ind.	**1.00**
331	Slotted	Ind.	**1.00**

Diam. of base, $3\frac{1}{16}$ in. Supporting screws spaced $2\frac{5}{32}$ in. on centers. Height over all, $2\frac{11}{16}$ in.
Carton, 1. Std. Pkg., 10. Wt. Std. Pkg., 15 Lbs.

Quadruple Break—20 Amp., 250 Volts

Mfrs. No.	Style	Base	Carton	Std. Pkg.	Wt Lb. Std.Pkg	Price Each
1027	Solid	Non-Ind.	1	10	12	**$1.40**
1028	Slotted	Non-Ind.	1	10	12	**1.40**
1029	Solid	Ind.	1	10	12	**1.50**
1030	Slotted	Ind.	1	10	12	**1.50**

Diam. of base, $3\frac{1}{16}$ in. Supporting screws spaced $2\frac{5}{32}$ in. on centers. Height over all, $2\frac{11}{16}$ in.

30 Amp., 125 Volts

†640	Solid	Non-Ind.	1	10	15	**$1.40**
†641	Slotted	Non-Ind.	1	10	15	**1.40**
†642	Solid	Ind.	1	10	15	**1.50**
†643	Slotted	Ind.	1	10	15	**1.50**

Diam. of base, $3\frac{1}{2}$ in. Supporting screws spaced $2\frac{7}{16}$ in. on centers. Height over all, 3 in.

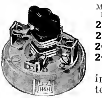
*When specified, these switches will be furnished with round handles, without extra charge.

Switches may be converted into lock switches by removing the handle and using a lock attachment.

†Not N. E. C. Standard.

H & H SURFACE SWITCHES
N. E. C. Standard—Schedule S
DOUBLE POLE

***5 Amp., 250 Volts**


No. 2085

Mfrs. No.	Style	Base	Wt.Lb. Std.Pkg.	Price Each
2085	Solid	Non-Ind.	33	**$0.56**
2086	Slotted	Non-Ind.	33	**.56**
2087	Solid	Ind.	33	**.64**
2088	Slotted	Ind.	33	**.64**

Diam. of base, $2\frac{1}{8}$ in. Supporting screws spaced $1\frac{7}{16}$ in. on centers. Height over all, $1\frac{15}{16}$ in.
Carton, 10. Std. Pkg., 100.

***10 Amp., 250 Volts**

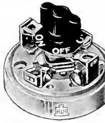
Mfrs. No.	Style	Base	Carton	Std. Pkg.	Wt. Lb. Std.Pkg.	Price Each
22	Solid	Non-Ind.	10	100	50	**$0.66**
122	Slotted	Non-Ind.	10	100	50	**.66**
222	Solid	Ind.	10	100	50	**.76**
322	Slotted	Ind.	10	100	50	**.76**

Diam. of base, $2\frac{15}{32}$ in. Supporting screws spaced $1\frac{3}{4}$ in. on centers. Height over all, $2\frac{1}{8}$ in.

20 Amp., 250 Volts

Mfrs No	Style	Base	Price Each
32	Solid	Non-Ind.	**$1.40**
132	Slotted	Non-Ind.	**1.40**
432	Solid	Ind.	**1.50**
532	Slotted	Ind.	**1.50**

Diam. of base, $3\frac{1}{16}$ in. Supporting screws spaced $2\frac{5}{32}$ in. on centers. Height over all, $2\frac{11}{16}$ in.
Carton, 1. Std. Pkg., 30. Wt. Std. Pkg., 30 Lbs.


No. 432

30 Amp., 250 Volts

Mfrs. No.	Style	Base	Carton	Std. Pkg.	Wt. Lb. Std.Pkg.	Price Each
644	Solid	Non-Ind.	1	30	44	**$1.70**
645	Slotted	Non-Ind.	1	30	44	**1.70**
646	Solid	Ind.	1	30	44	**1.80**
647	Slotted	Ind.	1	30	44	**1.80**

Diam. of base, $3\frac{1}{2}$ in. Supporting screws spaced $2\frac{7}{16}$ in. on centers. Height over all, 3 in.

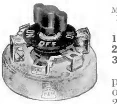
50 Amp., 250 Volts

†3613	Solid	Non-Ind.	1	10	25	3.00
†3614	Slotted	Non-Ind.	1	10	25	**3.00**
†3615	Solid	Ind.	1	10	25	**3.10**
†3616	Slotted	Ind.	1	10	25	**3.10**

Diam. of base, $4\frac{1}{4}$ in. Supporting screws spaced $3\frac{3}{16}$ in. on centers. Height over all, $3\frac{1}{8}$ in.

TRIPLE POLE

***10 Amp., 250 Volts**


No. 226

Mfrs No.	Style	Base	Wt Lb. Std Pkg.	Price Each
26	Solid	Non-Ind.	10	**$1.90**
126	Slotted	Non-Ind.	10	**1.90**
226	Solid	Ind.	10	**2.00**
326	Slotted	Ind.	10	**2.00**

Diam. of base, $2\frac{11}{16}$ in. Supporting screws spaced $2\frac{1}{16}$ in. on centers. Height over all, $2\frac{1}{4}$ in.
Carton, 1. Std. Pkg., 10.

20 Amp., 250 Volts

Mfrs. No	Style	Base	Carton	Std. Pkg.	Wt. Lb. Std.Pkg.	Price Each
8511	Solid	Non-Ind.	1	10	25	**$2.40**
8512	Slotted	Non-Ind.	1	10	25	**2.40**
8513	Solid	Ind.	1	10	25	**2.50**
8514	Slotted	Ind.	1	10	25	**2.50**

Diam. of base, $3\frac{27}{32}$ in. Supporting screws spaced $2\frac{23}{32}$ in. on centers. Height over all, $3\frac{1}{8}$ in.

30 Amp., 250 Volts

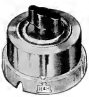
2655	Solid	Non-Ind.	1	10	25	**2.90**
2656	Slotted	Non-Ind.	1	10	25	**2.90**
2657	Solid	Ind.	1	10	25	**3.00**
2658	Slotted	Ind.	1	10	25	**3.00**

Diam. of base, $4\frac{1}{4}$ in. Supporting screws spaced $3\frac{3}{16}$ in. on centers. Height over all, $3\frac{1}{8}$ in.

See opposite column for footnotes.

H & H SURFACE SWITCHES
N. E. C. Standard—Schedule S

THREE-WAY


No. 2152

***3 Amp., 125 V.—1 Amp., 250 V**

Mfrs. No.	Style	Base	Price Each
2152	Solid	Non-Ind.	**$0.48**
2153	Slotted	Non-Ind.	**.48**

Diam. of base, $2\frac{1}{8}$ in. Supporting screws spaced $1\frac{7}{16}$ in. on centers. Height over all, $1\frac{15}{16}$ in. Carton, 10. Std. Pkg., 100. Wt. Std. Pkg., 31 Lbs.

***5 Amp., 125 Volts—3 Amp., 250 Volts**

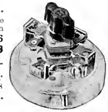
Mfrs. No.	Style	Base	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
2089	Solid	Non-Ind.	10	100	33	**$0.56**
2090	Slotted	Non-Ind.	10	100	33	**.56**

Diam. of base, $2\frac{1}{8}$ in. Supporting screws spaced $1\frac{7}{16}$ in. on centers. Height over all, $1\frac{15}{16}$ in.

***10 Amp., 125 V.—5 Amp., 250 V.**

Mfrs. No.	Style	Base	Price Each
23	Solid	Non-Ind.	**$0.76**
123	Slotted	Non-Ind.	**.76**

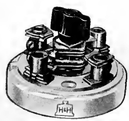
Diam. of base, $2\frac{15}{32}$ in. Supporting screws spaced $1\frac{3}{4}$ in. on centers. Height over all, $2\frac{1}{8}$ in. Carton, 10. Std. Pkg., 50. Wt. Std. Pkg., 27 Lbs.


Nos. 23 and 33

20 Amp., 125 Volts

Mfrs. No.	Style	Base	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
33	Solid	Non-Ind.	1	10	13	**$1.50**
133	Slotted	Non-Ind.	1	10	13	**1.50**

Diam. of base, $3\frac{1}{16}$ in. Supporting screws spaced $2\frac{5}{32}$ in. on centers. Height over all, $2\frac{11}{16}$ in.


No. 43

30 Amp., 125 Volts

Mfrs. No.	Style	Base	Price Each
43	Solid	Non-Ind.	**$1.80**
143	Slotted	Non-Ind.	**1.80**

Diam. of base, $3\frac{1}{2}$ in. Supporting screws spaced $2\frac{7}{16}$ in. on centers. Height over all, 3 in.

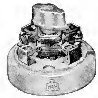
Carton, 1. Std. Pkg., 10. Wt. Std. Pkg., 17 Lbs.

FOUR-WAY

***5 Amp., 125 V.—2 Amp., 250 V.**

Mfrs. No	Style	Base	Price Each
24	Solid	Non-Ind.	**$0.86**
124	Slotted	Non-Ind	**.86**

Diam. of base, $2\frac{15}{32}$ in. Supporting screws spaced $1\frac{3}{4}$ in. on centers. Height over all, $2\frac{1}{8}$ in. Carton, 10. Std. Pkg., 30. Wt. Std. Pkg., 17 Lbs.


Nos. 24 and 2959

***10 Amp., 125 Volts—5 Amp., 250 Volts**

Mfrs. No	Style	Base	Carton	Std. Pkg.	Wt. Lb Std. Pkg.	Price Each
2959	Solid	Non-Ind.	1	10	9	**$1.90**
2960	Slotted	Non-Ind.	1	10	9	**1.90**

Diam. of base, $2\frac{11}{16}$ in. Supporting screws spaced $2\frac{1}{16}$ in. on centers. Height over all, $2\frac{1}{4}$ in.

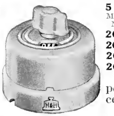
These four-way switches can be used also as pole changing switches.

*When specified, these switches will be furnished with round handles, without extra charge.

These switches may be converted into lock switches by removing the handle and using a lock attachment.

H & H SURFACE SWITCHES
N. E. C. Standard—Schedule S
WITH PORCELAIN COVERS AND HANDLES

*SINGLE POLE


No. 2628

5 Amp., 125 V.—3 Amp., 250 V.

Mfrs. No.	Style	Base	Price Each
2625	Solid	Non-Ind.	**$0.32**
2626	Slotted	Non-Ind.	**.32**
2627	Solid	Ind.	**.36**
2628	Slotted	Ind.	**.36**

Diam. of base, $2\frac{5}{16}$ in. Supporting screws spaced $1\frac{7}{16}$ in. on centers. Height over all, 2 in. Carton, 1; Std. Pkg., 100; Wt. Std. Pkg., 45 Lbs.

10 Amp., 125 Volts—5 Amp., 250 Volts

Mfrs. No.	Style	Base	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
2231	Solid	Non-Ind.	1	30	23	**$0.56**
2232	Slotted	Non-Ind.	1	30	23	**.56**
2205	Solid	Ind.	1	30	23	**.62**
2206	Slotted	Ind.	1	30	23	**.62**

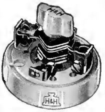
Diam. of base, $2\frac{5}{8}$ in. Supporting screws spaced $1\frac{3}{4}$ in. on centers. Height over all, $2\frac{3}{8}$ in.

*DOUBLE POLE

5 Amp., 250 Volts

Mfrs. No.	Style	Base	Price Each
2629	Solid	Non-Ind.	**$0.60**
2630	Slotted	Non-Ind.	**.60**
2631	Solid	Ind.	**.68**
2632	Slotted	Ind.	**.68**

Diam. of base, $2\frac{5}{16}$ in. Supporting screws spaced $1\frac{7}{16}$ in. on centers. Height over all, $2\frac{5}{64}$ in. Carton, 1; Std. Pkg., 10; Wt. Std. Pkg., 8 Lbs.

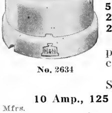

No. 2244

10 Amp., 250 Volts

Mfrs. No.	Style	Base	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
2244	Solid	Non-Ind.	1	10	10	**$0.74**
2245	Slotted	Non-Ind.	1	10	10	**.74**
2207	Solid	Ind.	1	10	10	**.84**
2208	Slotted	Ind.	1	10	10	**.84**

Diam. of base, $2\frac{5}{8}$ in. Supporting screws spaced $1\frac{3}{4}$ in. on centers. Height over all, $2\frac{3}{8}$ in.

*THREE-WAY


No. 2634

3 Amp., 125 V.—1 Amp., 250 V.

Mfrs. No.	Style	Base	Price Each
1068	Solid	Non-Ind.	**$0.52**
1069	Slotted	Non-Ind.	**.52**

Wt. Std. Pkg. 5 Lbs.

5 Amp., 125 V.—3 Amp., 250 V.

Mfrs. No.	Style	Base	Price Each
2633	Solid	Non-Ind.	**.60**
2634	Slotted	Non-Ind.	**.60**

Diam. of base, $2\frac{5}{16}$ in. Supporting screws spaced $1\frac{7}{16}$ in. on centers. Height over all, $2\frac{5}{64}$ in. Carton, 1; Std. Pkg., 10; Wt. Std. Pkg. 8 Lbs.

10 Amp., 125 Volts—5 Amp., 250 Volts

Mfrs. No.	Style	Base	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
2209	Solid	Non-Ind.	1	10	10	**$0.84**
2210	Slotted	Non-Ind.	1	10	10	**.84**

*FOUR-WAY

5 Amp., 125 Volts—2 Amp., 250 Volts

Mfrs. No.	Style	Base	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
2234	Solid	Non-Ind.	1	10	8	**.94**
2235	Slotted	Non-Ind.	1	10	8	**.94**

Diam. of base, $2\frac{5}{8}$ in. Supporting screws spaced $1\frac{3}{4}$ in. on centers. Height over all, $2\frac{3}{8}$ in.

*When specified, these switches will be furnished with round handles, without extra charge.

Switches may be converted into lock switches by removing handle and using lock attachment.

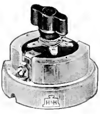
H & H 600 VOLT BARRIER SWITCHES
N. E. C. Standard—Schedule S

FOR ELECTRIC RAILWAY USE

H & H 600 volt switches are made especially for use on electric railway cars, to control the air brake, headlight, heater and incandescent circuits.

The porcelain barriers between the contacts have a narrow slot through which the blades pass. When the blades enter the slot, the arc is immediately snuffed out and the erosion of blades and contacts from arcing is greatly reduced. These switches will take care of heavy overloads without injury to the blades or contacts.

SINGLE POLE


No. 150½

***5 A., 600 V.—10 A., 250 V.**

Mfrs. No.	Style	Base	Price Each
50½	Solid	Non-Ind.	$0.66
150½	Slotted	Non-Ind.	.66
250½	Solid	Ind.	.76
350½	Slotted	Ind.	.76

Diam. of base, $2\frac{15}{32}$ in. Supporting screws spaced $1\frac{25}{32}$ in. on centers. Height over all, $2\frac{5}{16}$ in.

Carton, 1. Std. Pkg., 50. Wt. Std. Pkg., 34 Lbs.

10 Amp., 600 Volts—20 Amp., 250 Volts

Mfrs. No.	Style	Base	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
576	Solid	Non-Ind.	1	50	64	$1.60
577	Slotted	Non-Ind.	1	50	64	1.60
578	Solid	Ind.	1	50	64	1.70
579	Slotted	Ind.	1	50	64	1.70

Diam. of base, $3\frac{3}{16}$ in. Supporting screws spaced $2\frac{7}{16}$ in. on centers. Height over all, 2⅞ in.

20 Amp., 600 Volts—30 Amp., 250 Volts

Mfrs. No.	Style	Base	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
241½	Solid	Non-Ind.	1	50	73	1.90
341½	Slotted	Non-Ind.	1	50	73	1.90
441½	Solid	Ind.	1	50	73	2.00
541½	Slotted	Ind.	1	50	73	2.00

Diam. of base, 3½ in. Supporting screws spaced $2\frac{7}{16}$ in. on centers. Height over all, 2⅞ in.

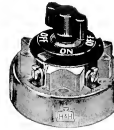
DOUBLE POLE

***5 A., 600 V.—10 A., 250 V.**

Mfrs. No.	Style	Base	Price Each
3015	Solid	Non-Ind.	$0.90
3016	Slotted	Non-Ind.	.90
3017	Solid	Ind.	1.00
3018	Slotted	Ind.	1.00

Diam. of base, $2\frac{15}{32}$ in. Supporting screws spaced $1\frac{23}{32}$ in. on centers. Height over all, $2\frac{5}{16}$ in.

Carton, 1. Std. Pkg., 50. Wt. Std. Pkg., 32 Lbs.



No. 2170

10 Amp., 600 Volts—20 Amp., 250 Volts

Mfrs. No.	Style	Base	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
2168	Solid	Non-Ind.	1	50	64	$1.80
2169	Slotted	Non-Ind.	1	50	64	1.80
2170	Solid	Ind.	1	50	64	1.90
2171	Slotted	Ind.	1	50	64	1.90

Diam. of base, $3\frac{3}{16}$ in. Supporting screws spaced $2\frac{7}{16}$ in. on centers. Height over all, 2⅞ in.

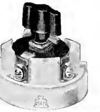
*When specified, these switches will be furnished with round handles, without extra charge.

These switches may be converted into lock switches by removing the handle and using a lock attachment.

H & H 600 VOLT BARRIER SWITCHES
N. E. C. Standard—Schedule S

FOR ELECTRIC RAILWAY USE

*THREE WAY


No. 53½

5 A., 600 V.—10 A., 250 V.

Mfrs. No.	Style	Base	Price Each
53½	Solid	Non-Ind.	$0.90
153½	Slotted	Non-Ind.	.90

Diam. of base, $2\frac{15}{32}$ in. Supporting screws spaced $1\frac{25}{32}$ in. on centers. Height over all, $2\frac{5}{16}$ in. Carton, 1. Std. Pkg., 50. Wt. Std. Pkg., 34 Lbs.

10 Amp., 600 Volts—20 Amp., 250 Volts

Mfrs. No.	Style	Base	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
2172	Solid	Non-Ind.	1	50	64	$1.70
2173	Slotted	Non-Ind.	1	50	64	1.70

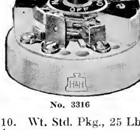
Diam. of base, $3\frac{3}{16}$ in. Supporting screws spaced $2\frac{7}{16}$ in. on centers. Height over all, 2⅞ in.

TRIPLE POLE

10 Amp., 600 Volts
20 Amp., 250 Volts

Mfrs. No.	Style Base	Price Each
Non-Indicating		
†3838	Solid	$2.90
†3839	Slotted	2.90
Indicating		
†3316	Solid	3.00
†3837	Slotted	3.00

Diam. of base, 4¼ in. Supporting screws spaced $3\frac{3}{16}$ in. on centers. Height over all, 3⅛ in.



No. 3316

Carton, 1. Std. Pkg., 10. Wt. Std. Pkg., 25 Lbs.
†Not N. E. C. Standard.

TWO CIRCUIT

Operations: 1, Off, 2, Off

Used to control combination arc and incandescent headlights, giving the connections: Arc, off, incandescent, off.

They are also used to alternately throw the headlights and tail lights into circuit, and for similar combinations of lights.

***5 Amp., 600 Volts—10 Amp., 250 Volts**

Mfrs. No.	Style	Base	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
572	Solid	Non-Ind.	1	50	34	$0.90
573	Slotted	Non-Ind.	1	50	34	.90
574	Solid	Ind.	1	50	34	1.00
575	Slotted	Ind.	1	50	34	1.00

Diam. of base, $2\frac{15}{32}$ in. Supporting screws spaced $1\frac{25}{32}$ in. on centers. Height over all, $2\frac{5}{16}$ in.

10 Amp., 600 Volts—20 Amp., 250 Volts

Mfrs. No.	Style	Base	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
2174	Solid	Non-Ind.	1	50	64	1.70
2175	Slotted	Non-Ind.	1	50	64	1.70
2176	Solid	Ind.	1	50	64	1.80
2177	Slotted	Ind.	1	50	64	1.80

Diam. of base, $3\frac{3}{16}$ in. Supporting screws spaced $2\frac{7}{16}$ in. on centers. Height over all, 2⅞ in.

*When specified, these switches will be furnished with round handles, without extra charge.

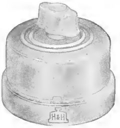
These switches may be converted into lock switches by removing the handle and using a lock attachment.

H & H 600 VOLT BARRIER SWITCHES

N. E. C. Standard—Schedule S

WITH PORCELAIN COVERS AND HANDLES

SINGLE POLE



No. 2421

5 Amp., 600 Volts

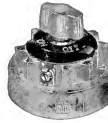
Mfrs No.	Style	Base	Price Each
2421	Solid	Non-Ind.	**$0.74**
2422	Slotted	Non-Ind.	**.74**
2423	Solid	Ind.	**.84**
2424	Slotted	Ind.	**.84**

Diam. of base, $2\frac{5}{8}$ in. Supporting screws spaced $1\frac{25}{32}$ in. on centers. Height over all, $2\frac{7}{16}$ in. Carton, 1. Std. Pkg., 10. Wt. Std. Pkg., 11 Lbs.

10 Amp., 600 Volts

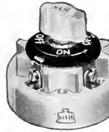
Mfrs. No.	Style	Base	Price Each
2511	Solid	Non-Ind.	**$1.68**
2512	Slotted	Non-Ind.	**1.68**
2513	Solid	Ind.	**1.78**
2514	Slotted	Ind.	**1.78**

Diam. of base, $3\frac{5}{16}$ in. Supporting screws spaced $2\frac{7}{16}$ in. on centers. Height over all, $3\frac{1}{64}$ in. Carton, 1. Std. Pkg., 10. Wt. Std. Pkg., 18 Lbs.



No. 2513

DOUBLE POLE



No. 2519

10 Amp., 600 Volts

Mfrs No.	Style	Base	Price Each
2517	Solid	Non-Ind.	**$1.96**
2518	Slotted	Non-Ind.	**1.96**
2519	Solid	Ind.	**2.06**
2520	Slotted	Ind.	**2.06**

Diam. of base, $3\frac{5}{16}$ in. Supporting screws spaced $2\frac{7}{16}$ in. on centers. Height over all, $3\frac{1}{64}$ in. Carton, 1. Std. Pkg., 10. Wt. Std. Pkg., 18 Lbs.

THREE WAY

5 Amp., 600 Volts

Mfrs. No.	Style	Base	Carton	Std. Pkg.	Wt. Lb. Std.Pkg.	Price Each
2425	Solid	Non-Ind.	1	10	11	**$0.98**
2426	Slotted	Non-Ind.	1	10	11	**.98**

Diam of base, $2\frac{5}{8}$ in. Supporting screws spaced $1\frac{25}{32}$ in. on centers. Height over all, $2\frac{7}{16}$ in.

10 Amp., 600 Volts

Mfrs. No.	Style	Base	Carton	Std. Pkg.	Wt. Lb. Std.Pkg.	Price Each
2515	Solid	Non-Ind.	1	10	18	**1.86**
2516	Slotted	Non-Ind.	1	10	18	**1.86**

Diam. of base, $3\frac{5}{16}$ in. Supporting screws spaced $2\frac{7}{16}$ in. on centers. Height over all, $3\frac{1}{64}$ in.

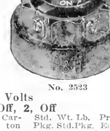
TWO CIRCUIT

5 Amp., 600 Volts

Connections: 1, Off, 2, Off

Mfrs. No.	Style	Base	Price Each
2427	Solid	Non-Ind.	**$1.00**
2428	Slotted	Non-Ind.	**1.00**
2429	Solid	Ind.	**1.10**
2430	Slotted	Ind.	**1.10**

Diam. of base, $2\frac{5}{8}$ in. Supporting screws spaced $1\frac{25}{32}$ in. on centers. Height over all, $2\frac{7}{16}$ in. Carton, 1. Std. Pkg., 10. Wt. Std. Pkg., 11 Lbs.



No. 2523

10 Amp., 600 Volts

Connections: 1, Off, 2, Off

Mfrs. No.	Style	Base	Carton	Std. Pkg.	Wt. Lb. Std.Pkg.	Price Each
2521	Solid	Non-Ind.	1	10	18	**$1.95**
2522	Slotted	Non-Ind.	1	10	18	**1.95**
2523	Solid	Ind.	1	10	18	**2.05**
2524	Slotted	Ind.	1	10	18	**2.05**

Diam. of base, $3\frac{5}{16}$ in. Supporting screws spaced $2\frac{7}{16}$ in. on centers. Height over all, $3\frac{1}{64}$ in.

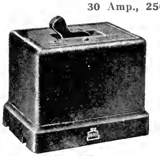
H & H MOTOR CONTROL SWITCHES

N. E. C. Standard—Schedule S

HEAVY DUTY, TUMBLER TYPE

With Composition Base and Cover

30 Amp., 250 Volts



No. 8325

The mechanism of this switch has a special "kick - off" feature which starts the contact blades in motion before the switch snaps. This movement is immediately picked up by the heavy spring thus eliminating any chance of the blades sticking.

Mfrs. No.	Style	Base	Carton	Std. Pkg.	Wt Lb. Std.Pkg.	Price Each
8325	Slotted	Ind.	1	10	1	**$2.25**

Diam. of base, $3\frac{1}{8}$ in. wide and $4\frac{1}{4}$ in. long. Supporting screws spaced $1\frac{9}{16}$x$2\frac{11}{16}$ in. Height over all, $3\frac{3}{4}$ in.

REVERSING SWITCH, ROTARY TYPE

Double Pole, Double Throw, with No Off Position

10 Amp., 250 Volts

Frequently used as an auxiliary switch where it is desired to reverse the motor operating machinery and appliances, thus changing the direction of certain moving parts. There being no "off" position, the motor is immediately reversed w i t h o u t passing through any intermediate position of the switch.

No. 8588

Mfrs. No.	Style	Base	Carton	Std. Pkg.	Wt.Lb. Std Pkg.	Price Each
8586	Solid	Non-Ind.	1	10	10	**$2.40**
8587	Slotted	Non-Ind.	1	10	10	**2.40**
8588	Solid	Ind.	1	10	10	**2.50**
8589	Slotted	Ind.	1	10	10	**2.50**

Diam. of base, $2\frac{11}{16}$ in. Supporting screws spaced $2\frac{1}{16}$ in. on centers. Height over all, $2\frac{1}{8}$ in.

TRIPLE POLE—20 Amp., 250 Volts

Mfrs. No.	Style	Base	Carton	Std. Pkg.	Wt.Lb. Std Pkg.	Price Each
8605	Solid	Non-Ind.	1	10	20	....
8606	Slotted	Non-Ind.	1	10	20	....
8607	Solid	Ind.	1	10	20	....
8608	Slotted	Ind.	1	10	20	....

Diam. of base, $3\frac{1}{8}$ in. Supporting screws spaced $2\frac{1}{8}$x$2\frac{13}{32}$ in. on centers. Height over all, $2\frac{15}{16}$ in.

FOUR POLE—20 Amp., 250 Volts

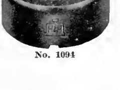
Mfrs. No.	Style	Base	Carton	Std. Pkg.	Wt.Lb. Std Pkg.	Price Each
8811	Solid	Non-Ind.	1	10	20	....
8812	Slotted	Non-Ind.	1	10	20	....
8813	Solid	Ind.	1	10	20	....
8814	Slotted	Ind.	1	10	20	....

Diam. of base, $3\frac{1}{8}$ in. Supporting screws spaced $2\frac{1}{8}$x$2\frac{13}{32}$ in. on centers. Height over all, $2\frac{15}{16}$ in.

COMPOSITION COVERS

For Rotary, Indicating Surface Switches

10 Amp. Sizes



No. 1094

Mfrs. No.	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
1094	10	100	30	**$0.10**

Outside diameter $2\frac{7}{16}$ in.

Mfrs. No.	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
1095	10	100	32	**.10**

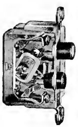
Outside diameter $2\frac{11}{16}$ in.

Height of covers, $1\frac{1}{16}$ in.

H & H PUSH BUTTON SWITCHES

N. E. C. Standard—Schedule S

STANDARD TYPE


No. 2081

Mfrs. No.	Cap., Amp. 125 Volts	Cap., Amp. 250 Volts	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
Single Pole					
2081	10	5	100	49	**$0.45**
Double Pole					
2082	10	10	50	29	**.70**
3778	20	20	20	13	**.80**
Three Way					
2083	10	5	50	29	**.70**
Four Way					
2084	10	5	10	9	**2.00**

Carton, 10.

*WITH LOCK

Mfrs. No	Cap., Amp. 125 Volts	Cap., Amp. 250 Volts	Std. Pkg.	Pkg. Wt	Price Each
Single Pole					
2081-L	10	10	100	50	**$0.90**
Double Pole					
2082-L	10	10	50	30	**1.15**
3778-L	20	20	20	13	**1.25**
Three Way					
2083-L	10	10	50	30	**1.15**
Four Way					
2084-L	10	5	10	9	**2.45**
Key for Lock Switch					
5003	....	....	100	2	**.10**

Carton, 10.

*One key is furnished with each lock switch without extra charge.

No. 2081-L with No. 4077 Plate

ELECTROLIER TYPE

10 Amperes, 125 Volts—5 Amperes, 250 Volts

Mfrs. No.	Description	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
Connections: 1, Off, 1 & 2, Off, 1 & 2 & 3, Off					
2967	Indicating	10	10	9	**$1.15**
3511	Non-indicating	10	10	9	**1.05**
Connections: 1, Off, 1 & 2, Off					
2968	Indicating	10	10	9	**1.15**
3512	Non-indicating	10	10	9	**1.05**
Connections: 1, Off, 2, Off, 1 & 2, Off					
3264	Indicating	10	10	9	**1.15**
3513	Non-indicating	10	10	9	**1.05**

Outside supporting screws are spaced $3\frac{9}{32}$ inches on centers, and inside supporting screws are spaced $2\frac{13}{16}$ inches on centers. Depth of all above switches, without plates, is $1\frac{11}{16}$ inches.

RADIO-LUMINOUS PUSH SWITCHES

Any of the above switches, except the Lock Type, may be furnished with Radio-Luminous Push Buttons. Prefix the letters RB to Mfrs. No. and add **$0.25** to price of regular switch for each luminous button. Single Pole and Double Pole switches have one luminous button. Three Way and Four Way switches two luminous buttons.

Standard package assortments in carton quantities may be made of Regular, Luminous Buttons, and Lock Push Switches of the same type.

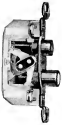
H & H PUSH BUTTON SWITCHES

N. E. C. Standard—Schedule S

NUTMEG TYPE

Shallow Base, 1 Inch Deep

Shallow Base Push Switches are especially adapted for installation in 2 inch partitions, with a shallow wall case.


No. 4401-S

Mfrs. No.	Cap., Amp. 125 Volts	Cap., Amp. 250 Volts	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
Single Pole					
4401-S	10	5	100	38	**$0.35**
Double Pole					
4402-S	10	10	50	21	**.70**
Three Way					
4403-S	10	5	50	21	**.50**
Four Way					
4404-S	10	5	10	21	**2.00**

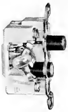
Carton, 10.

Outside supporting screw holes are spaced $3\frac{9}{32}$ inches on centers; inside supporting screw holes, $2\frac{13}{16}$ inches on centers. These are standard spacings for Push Switches.

Standard Base, 1⅝ Inches Deep

Mfrs. No.	Cap., Amp. 125 Volts	Cap., Amp. 250 Volts	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
Single Pole					
4401	10	5	100	56	**$0.35**
Three Way					
4403	10	5	50	32	**.50**

Carton, 10.

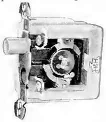

No. 4401

Any of the above Nutmeg Type Switches may be furnished with Radio-Luminous Push Buttons, see opposite column.

H & H MOMENTARY CONTACT SWITCHES
HEAVY DUTY

These switches are used largely for automatic operation on electrically driven machinery or appliances where an extremely durable mechanism is necessary. The buttons are made of brass.

Single button switches will fit plate No. 3515 listed below and the two button type fits standard push switch plates.


No. 3176

Circuit Normally Open

10 A., 125 V.—5 A., 250 V.

Mfrs. No	Carton	Std Pkg.	Wt.Lb Std Pkg	Price Each
Single Pole				
3176	10	10	8	*
Double Pole				
3138	10	10	8	*

Circuit Normally Closed

Mfrs. No.	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
Single Pole				
3288	10	10	8	*
Double Pole				
3198	10	10	8	*

*Price on application.

No. 3288 with No. 3515 Plate

Depth of the above listed heavy duty switches, without plate, is $2\frac{7}{32}$ inches. Outside supporting screw holes spaced $3\frac{9}{32}$ inches on centers. Inside supporting screw holes, $2\frac{13}{16}$ inches on centers.

PLATE WITH ONE BUTTON OPENING

For Momentary Contact Switch No. 2179

Mfrs. No.	No. of Switches	Size, In.	Carton	Std. Pkg.	Wt Lb. Std.Pkg.	Price Each
3515	1	4½x2¾	1	10	40	**$0.50**

H & H MOMENTARY CONTACT SWITCHES

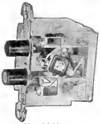
N. E. C. Standard—Schedule S

6 Amperes, 250 Volts

Pressure on the button closes the circuit as long as the button is held in. Releasing the button opens the circuit.

Two-circuit type has two separate, single pole switches each controlling a separate circuit. Both buttons cannot be operated at same time.

These switches are $2\frac{3}{16}$ inches deep and can be installed in regular deep wall case No. 3031. The two circuit type takes regular push button flush plate. For single circuit type use plate No. 3515.



No. 2061

Circuit Normally Open
Closed by Pushing Button

Mfrs. No	Description	Price Each
2061	Two circuit	**$2.40**
2061-L	Two circuit lock	**2.85**
2179	Single circuit	**1.90**
2179-L	Single circuit lock	**2.35**

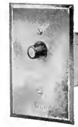
Carton, 10. Std. Pkg., 10. Std. Pkg. Wt., 11 lbs.

Circuit Normally Closed
Opened by Pushing Button

Mfrs. No.	Description	Price Each
3660	Two circuit	**$2.40**
3660-L	Two circuit lock	**2.85**
3661	Single circuit	**1.90**
3661-L	Single circuit lock	**2.35**

Carton, 10. Std. Pkg., 10. Std. Pkg. Wt., 11 lbs.

Outside supporting screw holes spaced $3\frac{9}{32}$ inches on centers. Inside supporting screw holes $2\frac{13}{16}$ inches on centers.



No. 2179 with No. 3515 Plate

*SHALLOW TYPE

Circuit Normally Open—No Rating

On battery circuits of low potential, the No. 2363 can be used in the same manner as the No. 2061 described above. It can also be used on lighting circuits, provided that the remote control switch itself opens the solenoid-energizing circuit when it operates. Standard switch plates are used.

Mfrs. No	Description	Price Each
2363	Two circuit (1½ in. deep)	**$1.50**
2364	Two circuit (1½ in. deep) Lock Type	**3.00**

Carton, 10. Std. Pkg., 10. Std. Pkg. Wt., 9 lbs.

*Depth of switch No. 2363 is 1½ inches. Outside supporting screw holes spaced $3\frac{9}{32}$ inches on centers. Inside supporting screw holes $2\frac{13}{16}$ inches on centers.

NUTMEG TYPE

10 Amperes, 125 Volts—5 Amperes, 250 Volts

Mfrs. No.	Description	Wt.Lb. Std.Pkg.	Price Each
8735	Single Pole, normally open	7	**$0.85**
8738	Single Pole, normally closed	7	**.85**
8736	Double Pole, normally open	7	**1.30**
8739	Double Pole, normally closed	7	**1.30**

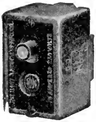
Carton, 10. Std. Pkg., 10.

Depth, 1⅝ inches. Outside supporting screw holes spaced $3\frac{9}{32}$ inches on centers. Inside supporting screw holes, $2\frac{13}{16}$ inches on centers.

H & H PANEL BOARD SWITCHES

Schedule S

Panel board switches are made in both tumbler and push button types. The standard spacing is 1½ inches on centers between poles and for 10 and 20 ampere switches this dimension is the same each way. Screw holes in 20 ampere types are partly surrounded by a crescent shaped punching in the contact plate.



No. 3522

10 AMPERES, 250 VOLTS, WITH COVERS
Spacing 1½x1½ Inches

Double Pole

Mfrs. No. Push Type	Mfrs. No. Tumbler Type	Wt.Lb. Std.Pkg.	Price Each
3522	....	30	**$1.00**

Carton, 1. Std. Pkg., 50.

20 AMPERES, 250 VOLTS, WITH COVERS
Spacing 1½x1½ Inches

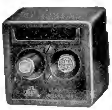
Mfrs. No. Push Type	Mfrs. No. Tumbler Type	Wt.Lb Std Pkg.	Price Each
Double Pole			
3248	**8329**	30	**$1.10**
Three Way			
8339	**8333**	30	**1.10**

Carton, 1. Std. Pkg., 50.

Spacing $\frac{13}{16}$x1½ Inches

Mfrs. No. Push Type	Mfrs. No. Tumbler Type	Wt.Lb Std Pkg.	Price Each
Double Pole			
8528	**8530**	30	**1.10**
Three Way			
8536	**8537**	30	**1.10**

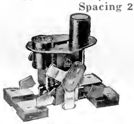
Carton, 1. Std. Pkg., 50.



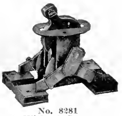
No. 3248

An allowance of **$0.25** list will be made on the above switches if ordered without covers.

30 AMPERES, 250 VOLTS, WITH COVERS
Spacing 2⅝x1½ Inches



No. 8247
Without Cover



No. 8281
Without Cover

No. 8281
With Cover

Mfrs. No. Push Type	Mfrs. No. Tumbler Type	Price Each
Double Pole		
8247	**8281**	**$2.00**
Three Way		
8386	**8396**	**2.00**
Triple Pole Without Cover		
....	**8372**	**4.25**

Car., 1. Std. Pkg., 50.

If cover is not desired for double pole or three way 30 ampere switches deduct **$0.30** from price. All 30 ampere panel board switches may be assorted to make standard package quantity.

DOUBLE POLE ROTARY SWITCHES

Composition Covers—N. E. C. Standard
New Type Bus Bar Contacts Spaced 1½ Inches on Centers

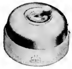
Mfrs. No.	Description	Carton	Std. Pkg.	Wt.Lb. Std. Pkg.	Price Each
3588	10 Amperes, 250 Volts	1	50	32	**$1.00**

Panel board switches and covers are packed separately.

H & H TUMBLER SWITCHES

N. E. C. Standard—Schedule S

SURFACE TYPE


No. 3775

Single Pole

5 Amp., 125 V.—3 Amp., 250 V.

Mfrs. No	Style Base	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
3775	Solid	10	100	35	**$0.32**
3774	Slotted	10	100	35	**.32**
	Three Way				
	5 Amp., 125 V.—3 Amp., 250 V.				
3777	Solid	10	100	35	**.56**
3776	Slotted	10	100	35	**.56**

Diam. of base, 2¼ in. Supporting screws spaced $1\frac{21}{32}$ in. on centers. Height over all, 1¾ in.

Single Pole, Indicating

10 Amp., 125 V.—5 Amp., 250 V.

No. 8410

Mfrs. No	Style Base	Carton	Std. Pkg.	Wt.Lb. Std Pkg.	Price Each
8410	Solid	10	100	53	**$0.48**
8411	Slotted	10	100	53	**.48**
	Double Pole, Ind.—10 A., 250 V.				
8412	Solid	10	100	56	**.76**
8413	Slotted	10	100	56	**.76**

Diam. of base, $2\frac{7}{16}$ in. Supporting screws spaced 1¾ in. on centers. Height over all, 2½ in.

Three Way—10 Amp., 125 V.—5 Amp., 250 V.

Mfrs. No	Style Base	Carton	Std. Pkg.	Wt.Lb. Std Pkg.	Price Each
8414	Solid	10	50	30	**$0.76**
8415	Slotted	10	50	30	**.76**
	Four Way—10 Amp., 125 V.—5 Amp., 250 V.				
8416	Solid	1	10	10	**1.90**
8417	Slotted	1	10	10	**1.90**

Diam. of base, $2\frac{7}{16}$ in. Supporting screws spaced 1¾ in. on centers. Height over all, 2½ in. Standard finish on covers is Old Brass.

FLUSH TYPE—PORCELAIN BASE

***Shallow Base (Depth 1 Inch)**

No. 8601 with No. 8441 Plate

Single Pole

Mfrs. No.	Cap., Amp. 125 Volts	Cap., Amp. 250 Volts	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
8601	10	5	100	10	**$0.45**
	Double Pole				
8602	....	10	50	21	**.70**
	Three Way				
8603	10	5	50	21	**.70**
	Four Way				
8604	10	5	10	10	**2.00**

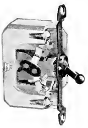
*These switches also supplied in composition base. Price and information on request.

Shallow Base (Depth 1⅛ Inches)

	Single Pole				
3721	10	5	100	35	**.45**
	Three Way				
3723	10	5	50	35	**.70**

Carton, 10.

Standard Base (Depth 1⅝ In.)


No. 8401

Single Pole

Mfrs. No	Cap., Amp. 125 Volts	Cap., Amp. 250 Volts	Std. Pkg.	Wt Lb. Std.Pkg.	Price Each
8401	10	5	100	60	**$0.45**
	Double Pole				
8402	10	5	50	35	**.70**
8432	....	20	10	10	**.80**
	Three Way				
8403	10	5	50	35	**.70**
	Four Way				
8404	10	5	10	10	**.200**

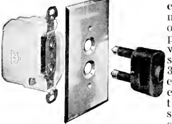
Carton, 10.

All tumbler switches listed may be supplied with radio luminous levers and assorted with the same regular switches to make standard package quantities. Prefix letters RB to Mfrs. No. and add **$0.25** to price.

H & H FLUSH RECEPTACLES

N. E. C. Standard—Schedule S

WITH CLOSING SHUTTERS


No. 2850 Receptacle No. 2301 Plate No. 2002 Plug

These receptacles are used in baseboards and floors. The openings are equipped with automatic shutters, which open and close as the plug is inserted and withdrawn. As the shutters of the No. 3087 are on the crossbar of the receptacle and not on the plate, standard switch plates, either singly or in gangs can be used with this receptacle.

WITH SHUTTERS ON RECEPTACLE

10 Amperes, 250 Volts

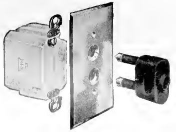
Mfrs. No.	Description	Carton	Std. Pkg.	Wt.Lb. Std. Pkg.	Price Each
3087	Complete with No. 2850 Receptacle, No. 2002 Plug and No. 2301 Switch Plate......	1	30	31	**$1.23**
2850	Receptacle only	10	30	15	**.80**
2002	Plug only	10	30	8	**.25**
2301	Single Heavy Brass Switch Plate	25	100	30	**.18**
2302	Two Gang Heavy Brass Switch Plate....	10	50	26	**.36**

Depth of receptacles, with plate, 1⅝ inches. Outside supporting screw holes spaced $3\frac{9}{32}$ inches on centers. Inside supporting screw holes spaced $2\frac{13}{16}$ inches on centers.

WITH SHUTTERS ON PLATE

10 Amperes, 125 Volts

Depth of receptacles, with plate, 1⅝ inches. Outside supporting screw holes spaced $3\frac{9}{32}$ inches on centers. Inside supporting screw holes spaced $2\frac{13}{16}$ inches on centers. No. 2033 may be made without bevel for floor work.


No. 2001 Receptacle No. 2033 Plate No. 2002 Plug

Mfrs. No	Description	Carton	Std Pkg.	Wt Lb. Std. Pkg	Price Each
2034	Complete with No. 2001 Receptacle, No. 2002 Plug and No. 2033 Plate	1	30	38	**$1.40**
2001	Receptacle only, without Plug or Plate........	10	30	20	**.50**
2002	Plug for No. 2001 or No. 2850 Receptacles	10	30	8	**.25**
2133	Plug with Extra Long Fingers for No. 2001 or No. 2850 Receptacles	1	30	10	**.50**
2033	Single Plate for No. 2001 Receptacle..........	15	30	15	**.65**
2233	Two Gang Plate for Two No. 2001 Receptacles	1	15	13	**1.30**

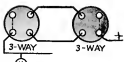
DIAGRAMS OF WIRING CONNECTIONS

FOR SNAP SWITCHES

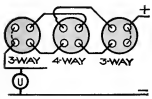
Single Pole

Double Pole

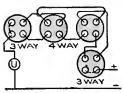
Triple Pole



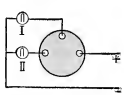
Three Way



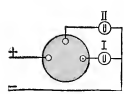
Three Way, Four Way and Three Way



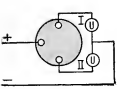
Two Three Way and Two Four Way



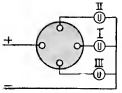
Electrolier Connections: 1, 1 & 2, 2, Off



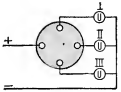
Electrolier Connections: 1, 2, 1 & 2, Off



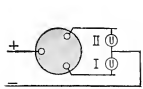
Electrolier Connections: 1, Off, 2, Off, or 1, 1 & 2, 1, Off



Electrolier Connections: 1, 1 & 2, 1 & 2 & 3, Off

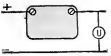


Electrolier Connections: 1, 2, 3, Off



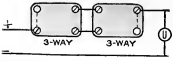
Electrolier Connections: 1 & 2, 1, Off or 1, 2, Off, or 1, 1 & 2, Off

FOR PUSH SWITCHES

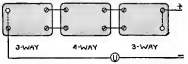


Single Pole

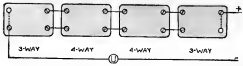
Double Pole



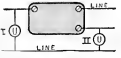
Three Way



Three Way, Four Way and Three Way

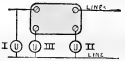


Two Three Way and Two Four Way



Electrolier Connections: 1, Off, 1 & 2, Off

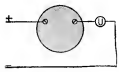
Electrolier Connections: 1, Off, 2, Off, 1 & 2, Off



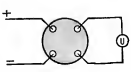
Electrolier Connections: 1, Off, 1 & 2, Off, 1 & 2 & 3, Off

DIAGRAMS OF WIRING CONNECTIONS

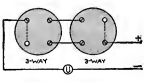
FOR SURFACE TUMBLER SWITCHES



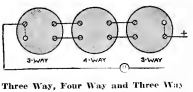
Single Pole



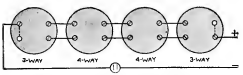
Double Pole



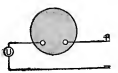
Three Way



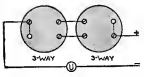
Three Way, Four Way and Three Way



Two Three Way and Two Four Way

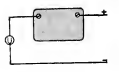


Single Pole
Nos. 3774, 3775

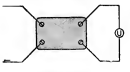


Three Way
Nos. 3776, 3777

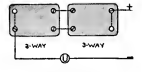
FOR FLUSH TUMBLER SWITCHES



Single Pole

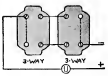


Double Pole

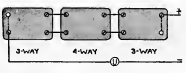


Three Way

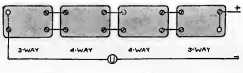
Single Pole
No. 3751



Three Way
No. 3753

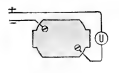


Three Way, Four Way and Three Way

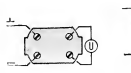


Two Three Way and Two Four Way

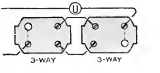
FOR ROTARY FLUSH SWITCHES



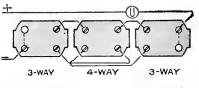
Single Pole



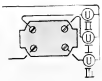
Double Pole



Three Way

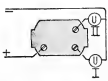


Three Way, Four Way and Three Way

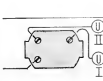


Electrolier
Connections: 1, 1 & 2, 1 & 2 & 3, Off

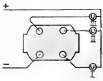
Electrolier
Connections: 1, 1 & 2, 1, Off



Electrolier
Connections: 1, 1 & 2, 2, Off



Electrolier
Connections: 1, 2, 1 & 2, Off



Electrolier
Connections: 1, 2, 3, Off

H & H PLATES

FOR PUSH SWITCHES—Schedule S

No. 8561

Struck-Up, .020 Brass

One Gang—4½x2¾ Inches

Old Brass Mfrs. No.	Old Brass Price Each	Wt Lb. Std.Pkg.	Duroplate Mfrs. No.	Duroplate Price Each
8551	$0.11	13	8551-D	$0.07
Struck-Up, .030 Brass				
One Gang—4½x2¾ Inches				
8561	.125	18	8561-D	.085
Two Gang—4½x4$\frac{9}{16}$ Inches				
8562	.25	17	8562-D	.17
Three Gang—4½x6⅜ Inches				
8563	.375	20	8563-D	.255

Carton Quantities—One gang plates, 25; two gang, 10; three gang, 5.

Struck-Up, .040 Brass

One Gang—4½x2¾ In.

Old Brass Mfrs. No.	Old Brass Price Each	Duroplate Mfrs. No.	Duroplate Price Each
4077	$0.14	4077-D	$0.10

Wt. Std. Pkg., 23 Lbs.

Two Gang—4½x4$\frac{9}{16}$ In.

4078	.28	4078-D	.20

Wt. Std. Pkg., 20 Lbs.

No. 4078

Old Brass Mfrs. No.	Old Brass Price Each	No. of Gangs	Size, In.	Wt.Lb. Std.Pkg.	Duroplate Mfrs. No.	Duroplate Price Each
4079	$0.42	3	4½x 6⅜	19	4079-D	$0.30
1154	.88	4	4½x 8$\frac{3}{16}$	18	1154-D	.72
1155	1.10	5	4½x10	16	1155-D	.90
1156	1.32	6	4½x11$\frac{13}{16}$	15	1156-D	1.08
1157	1.54	7	4½x13⅝	14	1157-D	1.26
1158	1.76	8	4½x15$\frac{7}{16}$	13	1158-D	1.44
Struck-Up, .060 Brass						
2301	.18	1	4½x 2¾	30	2301-D	.14
2302	.36	2	4½x 4$\frac{9}{16}$	26	2302-D	.28

Carton Quantities—One gang plates, 25; two gang, 10; three gang, 5; all others, 1.

Solid Brass

No. 2081 With No. 4051 Plate

One Gang—4½x2¾ Inches

Old Brass Mfrs. No.	Old Brass Price Each	Wt.Lb. Std.Pkg.	Duroplate Mfrs. No.	Duroplate Price Each
4051	$0.34	38	4051-D	$0.30
Two Gang—4½x4$\frac{9}{16}$ Inches				
4052	.68	30	4052-D	.60
Three Gang—4½x6⅜ Inches				
4053	1.02	31	4053-D	.90
Four Gang—4½x8$\frac{3}{16}$ Inches				
4054	1.36	28	4054-D	1.20
Five Gang—4½x10 Inches				
4055	2.00	28	4055-D	1.80
Six Gang—4½x11$\frac{13}{16}$ Inches				
4056	2.40	27	4056-D	2.16

Carton Quantities—One gang plates, 25; two gang, 10; three gang, 5; all others, 1.

Solid Brass, Tandem Gangs

Old Brass Mfrs. No.	Old Brass Price Each	No. of Gangs	Size, In.	Wt.Lb. Std.Pkg.	Duroplate Mfrs. No.	Duroplate Price Each
4072	$0.80	2	8⅛x2¾	36	4072-D	$0.72
4073	1.20	3	11¾x2¾	35	4073-D	1.08
4074	1.60	4	15⅜x2¾	34	4074-D	1.44
4075	2.00	5	19 x2¾	33	4075-D	1.80
4076	2.40	6	22⅝x2¾	32	4076-D	2.16

Carton, 1.

Solid Brass plates of more than six gangs will be furnished at **$0.40** list per gang in Old Brass and **$0.36** list per gang in Duroplate finish.

Standard package of all above plates, 100 gangs.

All plates for push switehes may be assorted.

H & H PLATES

FOR TUMBLER SWITCHES—Schedule S

No. 8401 With No. 8441 Plate

Struck-Up, .020 Brass

One Gang—4½x2¾ Inches

Old Brass Mfrs. No.	Old Brass Price Each	Wt Lb. Std Pkg.	Duroplate Mfrs. No.	Duroplate Price Each
8571	$0.11	13	8571-D	$0.07
Struck-Up, .030 Brass				
One Gang—4½x2¾ Inches				
8581	.125	18	8581-D	.085
Two Gang—4½x4$\frac{9}{16}$ Inches				
8582	.25	17	8582-D	.17
Three Gang—4½x6⅜ Inches				
8583	.375	20	8583-D	.255

Carton Quantities—One gang plates, 25; two gang, 10; three gang, 5.

Struck-Up, .040 Brass

Old Brass Mfrs. No.	Old Brass Price Each	No. of Gangs	Size, In.	Wt.Lb. Std.Pkg.	Duroplate Mfrs. No.	Duroplate Price Each
8441	$0.14	1	4½x 2¾	23	8441-D	$0.10
8442	.28	2	4½x 4$\frac{9}{16}$	20	8442-D	.20
8443	.42	3	4½x 6⅜	19	8443-D	.30
8444	.88	4	4½x 8$\frac{3}{16}$	15	8444-D	.72
8445	1.10	5	4½x10	15	8445-D	.90
8446	1.32	6	4½x11$\frac{13}{16}$	15	8446-D	1.08
8447	1.54	7	4½x13⅝	15	8447-D	1.26
8448	1.76	8	4½x15$\frac{7}{16}$	15	8448-D	1.44
Struck-Up, .060 Brass						
8591	.18	1	4½x 2¾	30	8591-D	.14
8592	.36	2	4½x 4$\frac{9}{16}$	26	8592-D	.28

Carton Quantities—One gang plates, 25; two gang, 10; three gang, 5; all others, 1.

Solid Brass

One Gang—4½x2¾ Inches

Old Brass Mfrs. No.	Old Brass Price Each	Wt.Lb. Std.Pkg.	Duroplate Mfrs. No.	Duroplate Price Each
8451	$0.34	38	8451-D	$0.30
Two Gang—4½x4$\frac{9}{16}$ Inches				
8452	.68	30	8452-D	.60
Three Gang—4½x6⅜ Inches				
8453	1.02	31	8453-D	.90
Four Gang—4½x8$\frac{3}{16}$ Inches				
8454	1.36	28	8454-D	1.20
Five Gang—4½x10 Inches				
8455	2.00	28	8455-D	1.80
Six Gang—4½x11$\frac{13}{16}$ Inches				
8456	2.40	27	8456-D	2.16

No. 8451

Carton Quantities—One gang plates, 25; two gang, 10; three gang, 5; all others, 1.

Solid Brass, Tandem Gangs

Old Brass Mfrs. No.	Old Brass Price Each	No. of Gangs	Size, In.	Wt.Lb. Std.Pkg.	Duroplate Mfrs. No.	Duroplate Price Each
8462	$0.80	2	8⅛x2¾	36	8462-D	$0.72
8463	1.20	3	11¾x2¾	35	8463-D	1.08
8464	1.60	4	15⅜x2¾	34	8464-D	1.44
8465	2.00	5	19 x2¾	33	8465-D	1.80
8466	2.40	6	22⅝x2¾	32	8466-D	2.16

Carton, 1. Solid Brass plates of more than six gangs will be furnished at **$0.40** list per gang in Old Brass and **$0.36** list per gang in Duroplate finish. Standard paekage of all the above plates is 100 gangs. All plates for tumbler switehes may be assorted.

H & H PLATES
Schedule S
FOR BULL'S EYE RECEPTACLES

No. 8692

Struck-Up, .040 Brass

One Gang—4½x2¾ In.

Old Brass Mfrs. No.	Old Brass Price Each	Duroplate Mfrs. No.	Duroplate Price Each
8691	**$0.80**	**8691-D**	**$0.76**

Wt. Std. Pkg., 10 Lbs.

Two Gang—4½x4$\frac{9}{16}$ In.

Old Brass Mfrs. No.	Old Brass Price Each	Duroplate Mfrs. No.	Duroplate Price Each
8692	**1.60**	**8692-D**	**1.52**

Wt. Std. Pkg., 8 Lbs.

Three Gang—4½x6⅜ In.

Old Brass Mfrs. No.	Old Brass Price Each	Duroplate Mfrs. No.	Duroplate Price Each
8693	**2.40**	**8693-D**	**2.28**

Wt. Std. Pkg., 11 Lbs.

Plates up to eight gangs will be furnished at **$0.80** list per gang in Old Brass and **$0.76** list per gang in Duroplate finish.

Struck-Up, .060 Brass

Old Brass Mfrs. No.	Old Brass Price Each	No. of Gangs	Size, In.	Wt.Lb. Std.Pkg.	Duroplate Mfrs. No.	Duroplate Price Each
8701	**$0.84**	1	4½x2¾	11	**8701-D**	**$0.80**
8702	**1.68**	2	4½x4$\frac{9}{16}$	9	**8702-D**	**1.60**
			Solid Brass			
3000	**1.00**	1	4½x2¾	13	**3000-D**	**.96**
8677	**2.00**	2	4½x4$\frac{9}{16}$	10	**8677-D**	**1.92**
8678	**3.00**	3	4½x6⅜	13	**8678-D**	**2.88**

Solid Brass Plates of more than three gangs will be furnished at **$1.00** list per gang in Old Brass and **$0.96** list per gang in Duroplate finish.

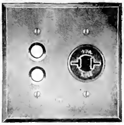
Carton Quantities—One gang plates, 25; two gang, 5; three gang, 1. Std. Pkg., 25.

All Bull's Eye receptacle plates may be assorted.

Tandem plates will be furnished as described on another page.

TWO-GANG COMBINATIONS
Schedule S

For Push Switch and Single Receptacle, Without Lid



No. PF

4½x4$\frac{9}{16}$ Inches

Mfrs. No.	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
	.030 Inch Brass		
PF-30	10	3½	**$0.35**
	.040 Inch Brass		
PF-40	10	4	**.38**
	.060 Inch Brass		
PF-60	10	5	**.46**
	Solid Brass		
PF	10	6½	**.88**

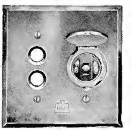
For Tumbler Switch and Single Receptacle Without Lid

Mfrs. No.	Description	Size, In.	Std. Pkg.	Pkg. Wt.	Price Each
TF-30	.030 In. Brass	4½x4$\frac{9}{16}$	10	3½	**$0.35**
TF-40	.040 In. Brass	4½x4$\frac{9}{16}$	10	4	**.38**
TF-60	.060 In. Brass	4½x4$\frac{9}{16}$	10	5	**.46**
TF	Solid Brass	4½x4$\frac{9}{16}$	10	6½	**.88**
	For Push Switch and Duplex Receptacle				
PD-30	.030 In. Brass	4½x4$\frac{9}{16}$	10	3½	**.35**
PD-40	.040 In. Brass	4½x4$\frac{9}{16}$	10	4	**.38**
PD-60	.060 In. Brass	4½x4$\frac{9}{16}$	10	5	**.46**
PD	Solid Brass	4½x4$\frac{9}{16}$	10	6½	**.88**
	For Tumbler Switch and Duplex Receptacle				
TD-30	.030 In. Brass	4½x4$\frac{9}{16}$	10	3½	**.35**
TD-40	.040 In. Brass	4½x4$\frac{9}{16}$	10	4	**.38**
TD-60	.060 In. Brass	4½x4$\frac{9}{16}$	10	5	**.46**
TD	Solid Brass	4½x4$\frac{9}{16}$	10	6½	**.88**

Prices are for plates in Old Brass finish, which will be shipped unless otherwise specified. For Duroplate finish, deduct **$0.08.** Combination plates may not be assorted. All plates, except those having lids, may be inverted for reverse order of combination.

H & H PLATES
Schedule S
TWO-GANG COMBINATIONS

For Push Switch and Edison Receptacle With Lid



No. PE

4½x4$\frac{9}{16}$ Inches

Mfrs. No.	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
	.040 Inch Brass		
PE-40	10	4	**$0.41**
	.060 Inch Brass		
PE-60	10	5	**.49**
	Solid Brass		
PE	10	6½	**.93**

For Tumbler Switch and Edison Receptacle With Lid

Mfrs. No.	Description	Size, In.	Std. Pkg.	Pkg. Wt.	Price Each
TE-40	.040 In. Brass	4½x4$\frac{9}{16}$	10	4	**$0.41**
TE-60	.060 In. Brass	4½x4$\frac{9}{16}$	10	5	**.49**
TE	Solid Brass	4½x4$\frac{9}{16}$	10	6½	**.93**

For Edison Receptacle and Tumbler Switch With Lid

No. ET

4½x4$\frac{9}{16}$ Inches

Mfrs. No.	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
	.040 Inch Brass		
ET-40	10	4	**$0.41**
	.060 Inch Brass		
ET-60	10	5	**.49**
	Solid Brass		
ET	10	6½	**.93**

For Edison Receptacle and Push Switch With Lid

Mfrs. No.	Description	Size, In.	Std. Pkg.	Pkg. Wt.	Price Each
EP-40	.040 In. Brass	4½x4$\frac{9}{16}$	10	4	**$0.41**
EP-60	.060 In. Brass	4½x4$\frac{9}{16}$	10	5	**.49**
EP	Solid Brass	4½x4$\frac{9}{16}$	10	6½	**.93**

For Tumbler Switch and Bull's-Eye Receptacle

No. TB

4½x4$\frac{9}{16}$ Inches

Mfrs. No.	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
	.040 Inch Brass		
TB-40	10	4	**1.04**
	.060 Inch Brass		
TB-60	10	5	**1.12**
	Solid Brass		
TB	10	6½	**1.54**

For Push Switch and Bull's-Eye Receptacle

Mfrs. No.	Description	Size, In.	Std. Pkg.	Pkg. Wt.	Price Each
PB-40	.040 In. Brass	4½x4$\frac{9}{16}$	10	4	**$1.04**
PB-60	.060 In. Brass	4½x4$\frac{9}{16}$	10	5	**1.12**
PB	Solid Brass	4½x4$\frac{9}{16}$	10	6½	**1.54**

Prices are for plates in Old Brass finish, which will be shipped unless otherwise specified. For Duroplate finish, deduct **$0.08.** Combination plates may not be assorted. All plates, except those having lids, may be inverted for reverse order of combination.

H & H PLATES

SOLID BRASS COMBINATIONS

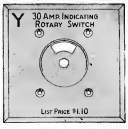
Standard Combination Plates of at least two different units are made up to order from the units listed below. If spacings or dimensions differ from the standard units, Special Solid Plate prices apply, as given on another page.

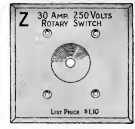
Many combinations are made in struck-up metal. The same combination symbols are used, with the gauge of the metal added. If no gauge is specified, solid brass will be furnished.

How to Order Combination Plates

The individual unit plates are known by letters. To order a combination of these, give the letters in the order of arrangement desired. For example (referring to chart) a push switch, pilot light and duplex receptacle, arranged as illustrated by the plate PBD would be specified as a "PBD Plate." If arranged vertically, write the letters in this fashion:

P
B
D





Prices of Combination Plates

The price of a combination plate is the sum of the individual prices of the component plates. For a tandem combination, or a combination plate in which the gangs are placed in more than one row, add 20% to the list prices shown. For example, if plate "PBD," illustrated, were a tandem plate, the list price would be $1.98 plus 20% or $2.38 list.

The standard package is ten (10) separate plates of the same combination.

For screw spacings see another page.

Standard finish is Old or Brush Brass. For special finishes see another page.

HUBBELL INTERCHANGEABLE PLUG CAPS

Schedule H 10 Amperes—250 Volts

TANDEM BLADES

No. 5419

Porcelain

Mfrs. No	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
5419	25	100	15	**$0.12**

Composition

Mfrs. No	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
5420	25	100	15	**$0.13**

No. 5420

No. 5421
No. 5523

Porcelain—Brass Covered

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
5421	25	100	15	**$0.25**
Composition—Brass Covered				
5523	25	100	15	**.30**

Composition—Elongated

Mfrs. No	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
6336	10	100	15	**$0.30**
6337	10	100	20	**.30**

Note: No. 6337 has ½ inch cord hole for Nos. 12 and 14 cord.

No. 6336-7

No. 6606

Composition—Brass Covered

Fitted with ⅜ inch threaded nipple.

Mfrs. No	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
6606	10	100	20	**$0.40**

PARALLEL BLADES—SMALL CAPS

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
Composition—$\frac{13}{32}$ Inch Cord Hole				
5964	25	250	30	**$0.10**
Composition—$\frac{5}{16}$ Inch Cord Hole				
6708	25	250	30	**.10**

No. 5964
No. 6708

No. 6764

Composition—Polarized

$\frac{13}{32}$ Inch Cord Hole

Mfrs No	Carton	Std. Pkg	Wt. Lbs. Std. Pkg.	Price Each
6764	25	250	30	**$0.10**

Composition—Brass Covered

Mfrs No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
5965	25	250	30	**$0.25**

No. 5965

KNOSTRAIN—PARALLEL BLADES

No. 6060

Composition

For Nos. 16 and 18 cord and No. 16 Duracord.

Mfrs No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg	Price Each
6060	10	50	8	**$0.25**

Brass Covered

For Nos. 16 and 18 cord and No. 18 Duracord.

Mfrs No	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
6061	10	50	12	**$0.55**

No. 6061

HUBBELL INTERCHANGEABLE PLUG CAPS

Schedule H 10 Amperes—250 Volts

KNOSTRAIN—TANDEM BLADES

No. 5700

Composition—Brass Covered

For Nos. 16 and 18 cord and No. 18 Duracord.

Mfrs No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
5700	10	50	12	**$0.55**

Composition—Brass Covered

For Nos. 16 and 18 cord and No. 16 Duracord.

Mfrs. No	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
5657	10	50	12	**$0.45**

No. 5657

ATTACHMENT PLUGS

660 Watts—250 Volts

No. 5915

Mfrs. No.		Std. Pkg.	Price Each
5915	Standard Plug	250	**$0.20**
6707	With $\frac{5}{16}$ in. Cord Hole	250	**.20**
5917	Body only	250	**.10**
5964	Cap for 5915	250	**.10**
6708	Cap for 6707	250	**.10**

Mfrs. No.		Std. Pkg.	Price Each
5824	With 6 Amp. Cartridge Fuse	50	**$0.88**
5826	Base only	50	**.75**
5420	Cap only	100	**.13**

No. 5824

No. 6828

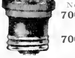
Mfrs. No.	Std. Pkg.	Price Each
	Plug Complete	
6828	250	**$0.26**
	Base Only	
5917	250	**.10**
	Cap Only	
6827	250	**.16**

Mfrs. No	Std. Pkg.	Price Each
	Plug Complete	
5467	250	**$0.38**
	Base Only	
5612	250	**.25**
	Cap Only	
5420	100	**.13**

No. 5467

Composition

Cord hole, $\frac{9}{32}$x⅜ in., for either round or parallel fixture cord. Blades are standard and will fit double T-slot convenience outlcts.


No. 7000

Mfrs. No	Std. Pkg.	Price Each
	Plug	
7000	500	**$0.15**
	Body Only	
7001	500	**.08**
	Cap Only	
7002	500	**.08**

HUBBELL SINGLE CONVENIENCE OUTLETS

Schedule H—10 Amp.; 250 Volts—N.E.C.S.

COMPOSITION AND PORCELAIN

No. 5850
No. 5547

TOP WIRED

Mfrs. No.	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
		Compostion		
5850	10	100	45	**$0.33**
		Porcelain		
5547	10	100	45	**.30**

Supporting screw holes spaced 2 13/16 inches and 3 9/32 inches.

SIDE WIRED

No. 7550

Mfrs. No.	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
		Composition		
7550	10	100	40	**$0.30**

Supporting screw holes spaced 2 15/16 inches and 3 9/32 inches.

PLATES FOR CONVENIENCE OUTLETS

Schedule H

HORIZONTAL GANGS

No. 5548

Struck-Up—.040 Inch Metal Brush Brass Finish

Mfrs No.	Description	Std. Pkg.	Price Each
6835	For One Recept.........	*	**$0.14**
6836	For Two Recept.......	*	**.28**
6837	For Three Recept.....	*	**.42**

Struck-Up—.040 Inch Metal Lacco Brass Finish

Mfrs No.	Description	Std. Pkg.	Price Each
6780	For One Recept.........	*	**.10**
6838	For Two Recept.......	*	**.20**
6839	For Three Recept.....	*	**.30**

Struck-Up—.060 Inch Metal, Brush Brass Finish

Mfrs. No.	Description	Std. Pkg.	Price Each
5548	For One Receptacle..............	*	**$0.18**
5549	For Two Receptacles..........	*	**.36**
6840	For Three Receptacles........	*	**.54**

Struck-Up—.060 Inch Metal, Lacco Brass Finish

Mfrs. No.	Description	Std. Pkg.	Price Each
6841	For One Receptacle..............	*	**.14**
6842	For Two Receptacles..........	*	**.28**
6843	For Three Receptacles........	*	**.42**

Gang plates up to and including 8 gangs can be furnished at **$0.27** per gang for Brush Brass and **$0.23** per gang for Lacco.

Solid Brass—.100 Inch Metal, Brush Brass Finish

Mfrs. No.	Description	Std. Pkg.	Price Each
6585	For One Receptacle..............	*	**.34**
6586	For Two Receptacles..........	*	**.68**
5550	For Three Receptacles........	*	**1.02**

Solid Brass—.100 Inch Metal, Lacco Brass Finish

Mfrs. No.	Description	Std. Pkg.	Price Each
6844	For One Receptacle..............	*	**.30**
6845	For Two Receptacles..........	*	**.60**
6846	For Three Receptacles........	*	**.90**

Solid Plates beyond three gangs can be furnished at **$0.40** per gang for Brush Brass and **$0.36** per gang for Lacco.

Plates in tandem or vertical gangs can be furnished in Solid Brass and take 20% advance over horizontal gangs.

*A standard package consists of 100 single plates or equivalent in gangs.

One-fifth standard package or 20 gangs of one catalog number will be considered carton quantity.

Any of the above plates may be assorted for standard package or carton quantity.

For special finishes see another page.

HUBBELL DUPLEX CONVENIENCE OUTLETS

Schedule H—10 Amp.; 250 Volts—N.E.C.S.

COMPOSITION AND PORCELAIN

No. 5890
No. 7550

TOP WIRED

Mfrs. No.	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
		Composition		
5890	10	50	35	**$0.51**
		Porcelain		
6257	10	50	35	**.48**

Supporting screw holes spaced 2 13/16 inches and 3 9/32 inches.

SIDE WIRED

No. 7575

Mfrs. No.	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
		Composition		
7575	10	50	22	**$0.48**

Supporting screw holes spaced 2 13/16 inches and 3 9/32 inches.

PLATES FOR DUPLEX CONVENIENCE OUTLETS

HORIZONTAL GANGS—**Schedule H**

No. 6258

Struck-Up—.040 Inch Metal Brush Brass Finish

Mfrs. No	Description	Std. Pkg.	Price Each
6854	For One Recept.........	*	**$0.14**
6855	For Two Recept.......	*	**.28**
6856	For Three Recept.....	*	**.42**

Struck-Up—.040 Inch Metal Lacco Brass Finish

Mfrs. No	Description	Std. Pkg.	Price Each
6784	For One Recept.........	*	**.10**
6857	For Two Recept.......	*	**.20**
6858	For Three Recept.....	*	**.30**

Struck-Up—.060 Inch Metal, Brush Brass Finish

Mfrs. No.	Description	Std. Pkg.	Price Each
6258	For One Receptacle..............	*	**$0.18**
6259	For Two Receptacles..........	*	**.36**
6859	For Three Receptacles........	*	**.54**

Struck-Up—.060 Inch Metal, Lacco Brass Finish

Mfrs. No.	Description	Std. Pkg.	Price Each
6860	For One Receptacle..............	*	**.14**
6861	For Two Receptacles..........	*	**.28**
6862	For Three Receptacles........	*	**.42**

Gang plates up to and including 8 gangs can be furnished at **$0.26** per gang for Brush Brass and **$0.22** per gang for Lacco.

Solid Brass—.100 Inch Metal, Brush Brass Finish

Mfrs. No.	Description	Std. Pkg.	Price Each
6587	For One Receptacle..............	*	**.34**
6588	For Two Receptacles..........	*	**.68**
6260	For Three Receptacles........	*	**1.02**

Solid Brass—.100 Inch Metal, Lacco Brass Finish

Mfrs. No.	Description	Std. Pkg.	Price Each
6863	For One Receptacle..............	*	**.30**
6864	For Two Receptacles..........	*	**.60**
6865	For Three Receptacles........	*	**.90**

Solid Plates beyond three gangs at **$0.40** per gang for Brush Brass and **$0.36** per gang for Lacco.

Plates in tandem or vertical gangs take 20% advance over horizontal plates.

*A standard package consists of 50 single plates or equivalent in gangs.

One-fifth standard package or 10 gangs of one catalog number will be considered carton quantity.

Any of the above plates may be assorted for standard package or carton quantity.

For special finishes see another page.

HUBBELL CORD CONNECTORS

Schedule H 10 Amperes—250 Volts

SMALL COMPOSITION MOTOR PLUG

No. 6179

Mfrs. No.	Description	Std. Pkg.	Price Each
6179	Complete	50	$0.41
6630	Body Only	50	.30
6631	Base Only	50	.11

COMPOSITION MOTOR ATTACHMENT PLUG

No. 5894

Mfrs. No.	Description	Std. Pkg.	Price Each
5894	Complete	50	$0.43
5574	Body Only	50	.30
5896	Base Only	50	.13

COMPOSITION MOTOR PLUG WITH PARALLEL BLADES

No. 6826

Mfrs. No.	Description	Std. Pkg.	Price Each
6826	Complete	50	$0.43
6118	Body Only, 1/2 in. Cord Hole	50	.30
6823	Base Only Carton, 25.	50	.13

POLARIZED COMPOSITION ATTACHMENT PLUG

No. 6277

Mfrs. No.	Description	Std. Pkg.	Price Each
6277	Complete	30	$0.85
6278	Body Only	30	.55
6279	Base Only	30	.30

CORD CONNECTOR SMALL COMPOSITION

No. 6180

Mfrs. No.	Description	Std. Pkg.	Price Each
6180	Complete	50	$0.40
6630	Body Only	50	.30
6181	Cap Only	50	.10

COMPOSITION CORD CONNECTOR

No. 6116

Mfrs. No.	Description	Std. Pkg.	Price Each
6116	Complete	50	$0.40
6118	Body Only	50	.30
5964	Cap Only	250	.10

SMALL POLARIZED CORD CONNECTOR COMPOSITION

No. 6821

Mfrs. No.	Description	Std. Pkg.	Price Each
6821	Complete	50	$0.45
6822	Body Only	50	.30
6918	Cap Only	50	.15

HUBBELL CORD CONNECTORS MOTOR AND ATTACHMENT PLUGS

Schedule H
CORD CONNECTORS
10 Amperes—250 Volts

Polarized

No. 5743

Mfrs. No.	Desc.	Std. Pkg.	Price Each
5743	Complete	30	$1.05
6278	Body	30	.55
5567	Cap	30	.50

No. 5518

Mfrs. No.	Description	Std. Pkg.	Price Each
5518	Complete	50	$0.43
5574	Body only	50	.30
5420	Cap only	100	.13

FLUSH MOTOR PLUG

10 Amperes—250 Volts
PLUG COMPLETE

No. 6807

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
6807	10	50	20	$0.50

Composition Base Only With Metal Casing

6808	10	50	8	.30

Composition Body Only 13/32 Inch Cord Hole

6630	10	50	20	.30

Supporting screw holes 1¾ inch on centers. Diameter of brass shell 1⅜ inches.

PORCELAIN ROUND FLUSH RECEPTACLE WITH SUPPORTING STRAPS

10 Amperes—250 Volts

Designed as a flush receptacle for special apparatus.

Screw holes in supporting straps, 1⅞ inches on centers.

No. 5614

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
5614	10	50	20	$0.40

HUBBELL TWO-CORD ATTACHMENT PLUG

660 Watts—250 Volts

No. 6850

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
6850	10	50	25	$0.50

TRIPLEX TABLE TAP

10 Amperes—250 Volts

Each tap is packed complete in an attractive display carton, and shipped five cartons in a pasteboard container.

No. 6900

Mfrs. No.	Description	Carton	Std. Pkg.	Price Each
6900	Triplex Table Tap complete with cord connector body, No. 5964 cap, and 8 feet of silk-covered cord	1	5	$3.00

HUBBELL CURRENT TAPS

Schedule H 660 Watts—250 Volts

No. 6710

DOUBLE OUTLET CURRENT TAP

These current taps provide three connections for lighting or heating devices.

Multiple Composition Current Tap With Two No. 5420 Composition Caps

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
6710	10	20	12	$0.96

Multiple Composition Current Tap, Less Caps

6711	10	20	10	.70

SINGLE CURRENT TAPS WITH SHADE HOLDER GROOVE

Multiple, With Porcelain Cap

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
5735	10	50	25	$0.62

Multiple, Less Cap

6297	10	50	20	.50

Series, Less Cap

6298	10	50	20	.50

No. 5735

MULTIPLE COMPOSITION WITH SHADE HOLDER GROOVE

With Composition Cap

Mfrs. No. 6338
Carton 10
Std. Pkg. 50
Wt. Lbs., Std. P'kg. 25
Price Each.....$0.73

Without Cap

Mfrs. No. 6339
Carton 10
Std. Pkg. 50
Price Each.....$0.60

No. 6338

No. 6109

SIGNALITE CURRENT TAPS

6 Amperes—125 Volts

Without Lamp

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
6108	10	30	12	$0.55

With Lamp

6109	10	30	12	1.00

COMPOSITION TE-CAP

Attached in the usual way to the flexible cord of any electrical appliance.

No. 6771

With Tandem Blades

Mfrs. No.	Carton	Std. Pkg	Wt.Lbs. Std.Pkg.	Price Each
6771	10	50	12	$0.30

With Parallel Blades

6772	10	50	12	.30

SIDE WIRE OUTLET CURRENT TAP

Multiple Composition

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
6335	10	50	15	$0.45

HUBBELL SEPARABLE ATTACHMENT PLUGS

FOR THREE-WIRE WORK—POLARIZED

Schedule H 660 Watts—250 Volts

With Composition Cap

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
6146	10	100	40	$0.55

Porcelain Base Only

6042	10	100	30	.30

Composition Cap Only

6149	10	50	15	.30

Brass Covered Composition Cap Only

6150	10	50	15	.40

No. 6146

COMPOSITION CORD CONNECTOR

FOR THREE-WIRE WORK POLARIZED

Schedule H

10 Amperes—250 Volts

Cord Connector

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
6408	10	50	20	$0.80

Composition Body Only

6409	10	50	15	.50

No. 6408

HUBBELL CAPS, ADAPTERS AND CORD CONNECTORS

CAPS FOR NO. 10 CABLE

With Knostrain Bushing—20 Ampere, 250 Volt

Porcelain—Brass Covered

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
5665	10	30	12	$1.00

Composition—Brass Covered

6589	10	30	12	1.05

No. 5665

PORCELAIN ADAPTERS

For 20 Amp. Recept.

Mfrs. No.	Carton	Std. Pkg.	Price Each
5898	10	30	$0.35

No. 5898

HUBBELL COMPOSITION 20 AMP. POLARIZED CORD CONNECTOR

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
6706	10	30	15	$1.30

Composition Body Only

6717	10	30	10	.75

Brass Covered Composition Cap

5156	10	30	15	.55

No. 6706

The 20-ampere caps listed above are suitable for use at the ampere rating given on 32-volt (Farm Lighting), 110 or 250-volt circuits.

HUBBELL WALL ELEXITS

Schedule LX 10 Amperes—250 Volts

WALL RECEPTACLES AND ACCESSORIES

No. LX101

Receptacle with Standard Steel Supporting Plate

May be supported (1) by screws $3\frac{9}{32}$ in. on centers vertically; (2) by screws 2¾ in. on centers diagonally; (3) by fixture stud using stirrup LX151 or LX153.

Plate required, LX301.

Mfrs. No.	Carton	Std. Pkg.	Price Each
LX101	10	50	**$0.80**

Receptacle with Narrow Steel Supporting Plate

Is supported by screws spaced $3\frac{9}{32}$ in. on centers vertically. Designed for attachment to special outlet box covers 52C63 and 54C63.

Plate required, LX311. Any wall plug will fit either wall receptacle.

Mfrs. No	Carton	Std. Pkg.	Price Each
LX111	10	50	**$0.75**

No. LX111

No. LX151

Steel Supporting Stirrup, Short

For supporting LX101 from ⅜ inch fixture stud, when end of stud is ⅝ inch to 1¼ inches back of wall surface.

Mfrs. No.	Carton	Std. Pkg.	Price Each
LX151	10	50	**$0.16**

Steel Supporting Stirrup, Long

For supporting LX101 from ⅜ inch fixture stud, when end of stud is 1¼ in. or more back of wall surface.

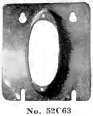
LX153	10	50	**.16**

Mounting screws, 1 inch No. 8-32, are included with LX101 and LX111.

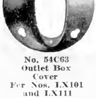
Receptacle LX111 can be used only with the two Elexit covers mentioned in the description.

Receptacle LX101 can be installed in various ways: (1) by means of the screw holes spaced $3\frac{9}{32}$ inches on centers in the two Elexit covers listed for LX111; (2) by means of the screw holes spaced 2¾ in. on centers direct to 3¼ inch round and octagonal boxes which have ears spaced 2¾ in. center to center diagonally, also to 4 in. square, round and octagonal boxes by means of a stirrup to fixture stud; (3) by means of stirrup LX151 or LX153 attached to fixture stud or gas pipe; If gas pipe is "alive," use gas cap to support stirrup.

Under all circumstances, extreme care must be used to have receptacles exactly flush with wall surface, otherwise plugs will not seat.



No. 52C63 Outlet Box Cover. For Nos. LX101 and LX111 Elexits

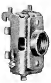


No. 54C63 Outlet Box Cover For Nos. LX101 and LX111 Elexits

HUBBELL WALL ELEXITS

Schedule LX 10 Amperes—250 Volts

WALL PLUGS



No. LX501

No. LX501 Back View

Plug, ⅜-Inch Female

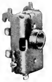
For permanent attachment to slip-canopy brackets or may be bushed down for center knob brackets.

Mfrs. No.	Carton	Std. Pkg.	Price Each
LX501	10	50	**$0.75**

Plug, ⅛-Inch Female

For center knob brackets or for permanent attachment to slip-canopy brackets made of ⅜ inch brass tubing.

Mfrs. No.	Carton	Std. Pkg.	Price Each
LX507	10	50	**$0.75**



No. LX507

No. LX511

Plug, with Spring Hook

For supporting flat back bracket provided with bridge, strap, saddle or back bar. Back of bar must be not less than $\frac{3}{16}$ inch and front of bar not more than ⅜ inch from wall surface.

Mfrs. No.	Carton	Std. Pkg.	Price Each
LX511	10	50	**$0.75**

Note: Any wall plug will fit either wall receptacle.

WALL PLATES

Standard Oval Plate, 4⅛ Inches x $3\frac{9}{32}$ Inches

Fits receptacle, LX101.

Mfrs. No.	Carton	Std. Pkg.	Price Each
LX301	10	50	**$0.35**

No. LX301 Plate on No. LX101 Receptacle

No. LX311 Plate on No. LX111 Receptacle

Narrow Oval Plate, 4⅛ Inches x $2\frac{1}{16}$ Inches

Fits receptacle, LX111.

Mfrs. No.	Carton	Std. Pkg.	Price Each
LX311	10	50	**$0.30**

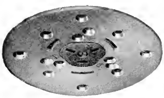
The standard finish of plates is Brush Brass.

Plates are stamped from .040 inch brass and are ⅛ inch deep. Oval head brass screws for attaching to receptacles are included with each plate.

HUBBELL CEILING ELEXITS

Schedule LX—10 Amperes, 250 Volts

STANDARD (SINGLE CIRCUIT) CEILING RECEPTACLES AND ACCESSORIES



No. LX 200 Without Face Plate.
Ceiling Plates for No. LX200 Listed on a Following Page.

Receptacle With Large Steel Supporting Plate

May be supported (1) by screws spaced 2¾ in. on centers; (2) by screws spaced 3½ in. on centers; (3) by fixture stud, using stirrup LX252 or LX254. Must be installed flush with ceiling surface. Can be installed wherever box conditions permit such position. Plate required LX400.

Mfrs. No.	Carton	Std. Pkg.	Price Each
LX200	10	50	**$1.05**

Receptacle With Small Steel Supporting Plate

Receptacle is supported from the fixture stud, using stirrup LX252 or LX254. A steel seating ring must also be used, LX262, LX264 or LX266, depending on the position of the fixture stud with reference to the ceiling surface.

No. LX202 Without Face Plate

Mfrs. No.	Carton	Std. Pkg.	Price Each
LX202	10	50	**$0.90**

No. LX252

Steel Supporting Stirrup, Short

For supporting LX200 or LX202 when fixture stud is not more than 1 inch back of ceiling surface.

Mfrs. No.	Carton	Std. Pkg.	Price Each
LX252	10	50	**$0.18**

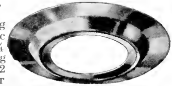
Steel Supporting Stirrup, Long

For supporting LX200 or LX202 when fixture stud is 1 inch to 1¾ inches back of ceiling surface.

LX254	10	50	**.18**

Steel Seating Ring, Shallow

For steadying LX202 when fixture stud is ⅝ inch to 1¼ in. back of ceiling surface and LX252 stirrup is used; or when fixture stud is 1¼ inches or more back of ceiling surface and LX254 stirrup is used. Plate required LX462



No. LX262 Seating Ring for No. LX202

Mfrs. No.	Carton	Std. Pkg.	Price Each
LX262	10	50 *	**$0.22**

Steel Seating Ring, Medium

For steadying LX202 when fixture stud is ½ inch back of ceiling surface to ¼ inch below ceiling surface, using LX252 stirrup. Plate required LX464.

LX264	10	50*	**.27**

Steel Seating Ring, Deep

For steadying LX202 when fixture stud projects ¼ inch to 1½ inches below ceiling surface, using LX252 stirrup. Plate required LX466.

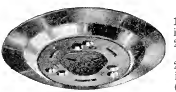
LX266	10	50*	**.33**

*These three catalog numbers may be assorted in unbroken cartons to make standard package.

HUBBELL CEILING ELEXITS

Schedule LX—10 Amperes, 250 Volts

STANDARD (SINGLE CIRCUIT) CEILING RECEPTACLES AND ACCESSORIES



No. LX202 Seated in No. LX262 Seating Ring

Mounting screws, 1 inch No. 8-32 are included with LX-200 and LX202.

Receptacle LX-200 can be installed in various ways: (1) to 4 inch square, round and octagonal boxes if they have covers with ears drilled and tapped 2¾ inches on centers for No. 8-32 screws; (2) by means of the screw holes spaced 3½ inches on centers direct to 4 inch round and octagonal boxes; (3) by means of stirrup LX252 or LX254 attached to fixture stud or gas pipe; if gas pipe is "alive," use gas cap to support stirrup.

Receptacle LX202 can be supported only from the fixture stud or gas pipe. If the gas pipe is "alive," use gas cap to support stirrup.

STANDARD (SINGLE CIRCUIT) CEILING PLUG AND ACCESSORIES

Plug, ⅜ Inch Female

For use under canopies

Mfrs. No.	Carton	Std. Pkg.	Price Each
LX600	10	50	**$0.90**

No. LX600

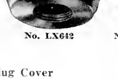
No. LX602

Threaded Plug, ⅜ Inch Female

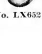
For use where plug is exposed. LX 642 plug cover must be used.

Mfrs. No.	Carton	Std. Pkg.	Price Each
LX602	10	50	**$1.05**

Standard finish of LX642 and LX652 is Brush Brass



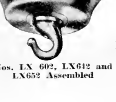
No. LX642



No. LX652

Plug Cover

Slips over LX652 hook and threads onto neck of LX602 plug.



Nos. LX 602, LX642 and LX652 Assembled

Mfrs. No.	Carton	Std. Pkg.	Price Each
LX642	10	50	**$0.40**

Hook, ⅜ Inch Male, With Hole for Conductors to Pass

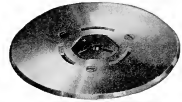
For use with any ceiling plug. So designed that LX-642 will slip over it.

LX652	10	50	**.25**

HUBBELL ELEXITS

Schedule LX 10 Amperes—250 Volts

CEILING PLATES



No. LX400 on No. LX200 Receptacle

Plate For LX200

Mfrs. No.	Price Each
LX400	**$0.45**

Carton, 10.
Std. Pkg., 50*.
Diam., In., 4⅝.
Depth, In., ⅛.

Shallow Plate for LX202

Offset $\frac{23}{64}$ inch. Must be used in connection with LX262 steel seating ring.

Mfrs. No.	Depth In.	Diam. In.	Carton	Std. Pkg.	Price Each
LX462	⅛	4⅝	10	50*	**$0.45**

Medium Plate for LX202

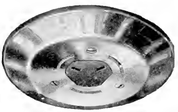
Offset $1\frac{13}{64}$ inch. Must be used in connection with LX264 steel seating ring.

Mfrs. No.	Depth In.	Diam. In.	Carton	Std. Pkg.	Price Each
LX464	$1\frac{5}{16}$	4¾	10	50*	**.55**

Deep Plate for LX202

Offset $2\frac{13}{32}$ inch. Must be used in connection with LX266 steel seating ring.

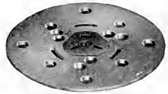
Mfrs. No.	Depth In.	Diam. In.	Carton	Std. Pkg.	Price Each
LX466	2½	$4\frac{13}{16}$	10	50*	**.90**



No. LX202 seated in No. LX262 Ring

The standard finish of plates is Brush Brass. Special finishes take same advances as standard flush plates. Plates are stamped from .025 inch brass. Oval head screws for attaching to receptacles are included with each plate. *These four catalog numbers may be assorted in unbroken cartons to make standard package.

TWO-CIRCUIT CEILING RECEPTACLES



No. LX230 without Face Plate

Receptacle With Large Steel Supporting Plate

Mfrs. No.	Price Each
LX230	**$1.35**

Carton, 10.
Std. Pkg., 10.

Receptacle With Small Steel Supporting Plate

Mfrs. No.	Carton	Std. Pkg.	Price Each
LX232	10	10	**$1.20**

Mounting screws, 1 in. No. 8-32, are included with each receptacle.

Receptacles LX230, LX232 correspond to LX200, LX202, except in the arrangement of the contacts. Single circuit plugs can be used in connection with two-circuit receptacles but will give only single circuit results. Plates listed in the tables above are designed for use also with two-circuit receptacles under exactly corresponding conditions.

TWO-CIRCUIT CEILING PLUGS

Plug, ⅜ Inch Female

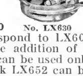
For use under canopies

Mfrs. No.	Carton	Std. Pkg.	Price Each
LX630	10	10	**$1.05**

Threaded Plug, ⅜ Inch Female

For use when plug is exposed

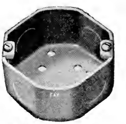
Mfrs. No.	Carton	Std. Pkg.	Price Each
LX632	10	10	**1.20**



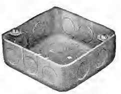
No. LX630

Plugs LX630 and LX632 correspond to LX600 and LX602, differing only by the addition of a third contact. Two-circuit plugs can be used only with two-circuit receptacles. Hook LX652 can be used with either LX630 or LX632, and cover LX642 can be attached to LX632.

OUTLET BOXES RECOMMENDED FOR WALL ELEXITS



Octagon Box No. 24151



Square Box No. 51151

(These numbers are used by ten outlet box manufacturers.)

Note:—All outlet boxes must be set flush or back of finished surface.

No. **24151** 3¼ in. octagon, 1½ in. deep. Tapped ears spaced 2¾ in. diagonally.

This outlet box will not accommodate the narrow Wall Elexit.

No. **54121** 4 in. octagon, 1½ in. deep with No. 54C63 Cover.

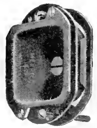
No. **51151** 4 in. square, 1½ in. deep with No. 52C63 Cover.

OUTLET BOXES RECOMMENDED FOR CEILING ELEXITS

No. 54C63

No. 52C63

No. 11



No. 20

(These numbers are used by ten outlet box manufacturers.)

Note:—All outlet boxes must set flush or back of finished surface.

No. **24151** 3¼ in. octagon, 1½ in. deep. Tapped ears spaced 2¾ in. on centers.

No. **54151** 4 in. octagon, 1½ in. deep. Tapped ears spaced 3½ in. on centers.

No. **51151** 4 in. square, 1½ in. deep with No. 52C63 Cover. 2⅞ in. round opening, tapped ears spaced 2¾ in. on centers.

No. **11** Collar-clamp Outlet Box.

For additional wall outlets to be installed in buildings already completed.

No. **20** Collar-clamp Outlet Box.

For additional ceiling outlets to be installed in buildings already completed.

HUBBELL CURRENT TAPS

Schedule B N.E.C. Standard

PULL SOCKET CURRENT TAPS

Plug Outlet—660 Watts, 250 Volts
Socket Outlet—250 Watts, 250 Volts

No. 3190

With Medium Screw Base

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
3190	10	50	22	**$1.00**

No. 3190 screws into any standard socket or socket receptacle. All orders for twenty or more packed in special counter containers.

No. 3191

With ½-Inch Cap

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
3191	10	50	20	**$0.80**
	With ¾-Inch Cap			
3193	10	50	20	**.89**
	With Pendent Cap			
3194	10	50	20	**.80**

The plug outlet on the above current Taps is provided with "T" slots which will take all types of Hubbell standard plug caps with tandem, parallel or right angle (polarized) blades.

The standard finish is brush brass.

For special finishes see another page.

HUBBELL PULL SOCKET WITH LAMP BASE ATTACHMENT

Schedule B

No. 35024

250 Watts—250 Volts

Mfrs No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
35024	10	100	34	**$0.70**

Pull socket with lamp base attachment can be attached to an ordinary key socket or receptacle.

HUBBELL OIL LAMP ATTACHMENT

Schedule F

250 Watts—250 Volts
With Plug and Silk Cord

Mfrs No.	Wt.Lbs Std.Pkg.	Price Each
5403	15	**$2.00**

Carton, 1. Std. Pkg., 20.

Can be attached to any oil lamp with a common burner. Socket fitted with 12 inch chain. Standard finish is brush brass.

No. 5403 Attached to Lamp

HUBBELL SOCKET CHAIN ACORNS

Schedule F

No. 5383

Acorn—Standard For Pull Sockets

Mfrs. No	Std. Pkg.	Price Each
5383	250	**$0.06**

Packed in bulk.

Acorn—Detachable For Pull Sockets

Mfrs. No	Std. Pkg.	Price Each
6982	250	**$0.06**

Packed in Bulk.

No. 6982 — Showing Slide Extended

Acorn—Detachable For Linen Cord

No. 5919

Mfrs No.	Std. Pkg.	Price Each
5919	250	**$0.06**

Packed in bulk. Furnished in black finish to match cord.

Acorn—Detachable Luminous

No. 4015

Mfrs No	Std Pkg.	Price Each
7015	100	**$0.25**

Each card enclosed in an envelope. Two envelopes, standard package, in a substantial paste-board box.

Candelabra Chain				Candelabra Acorn			
Mfrs. No.	Schedule	*Std. Pkg.	Price Per Ft	Mfrs. No.	Schedule	*Std. Pkg.	Price Each
5535	F	500 ft.	**$0.05**	**5853**	F	50	**$0.06**

*Packed in bulk.

For special finishes on acorns, add to list.....**$0.04**

HUBBELL ATTACHMENTS FOR PULL SOCKETS

Schedule F

Nos. 5828 and 5957

Attaches direct to any pull socket, not to the shade holder. Each attachment is equipped with 6 feet of black cord and No. 5919 adjustable acorn.

For Brass Sockets			For Reflectors In.	For Porcelain Sockets		
Mfrs No	Wt Lbs Std. Pkg.	Price Each		Mfrs. No	Wt.Lbs. Std.Pkg.	Price Each
5828	8	**$0.25**	8–12	**5957**	8	**$0.25**
5829	9	**.25**	14	**5958**	9	**.25**
5953	24	**.30**	16	**5959**	24	**.30**
5954	24	**.30**	18–20	**5960**	24	**.30**
6317	25	**.40**	22	**5961**	25	**.40**

Carton, 25. Standard Package, 100.

HUBBELL ECONOMY EXTENDERS FOR SOCKETS AND RECEPTACLES

Schedule F

Nos. 5880 and 6306

These extenders take the place of regular chain guide and are attached direct to socket interior.

Mfrs. No	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
	For Standard Sockets			
5880	25	250	18	**$0.30**
	For Electrolier Sockets			
6306	25	250	18	**.30**

Standard finish brush brass. For special finishes see another page.

BENJAMIN PLUG SOCKET SPECIALTIES

1080—LOCATAP

N. E. C. Std.—660 Watts, 250 Volts

No. 1080

Locatap Dispenser-Display Carton

A special feature current tap. Screw plug is swivel type which permits adjustment of side outlet to any point of a circle. Side outlet, of molded material, takes standard parallel blade attaching caps. Brushed brass shell has bead and thread at bottom for standard shade holders.

Mounted ten on a handsomely colored display card, furnished free.

Mfrs. No.	Description	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
1080	Locatap	10	2½	**$0.75**

122—DUOLET

N. E. C. Std.—660 Watts, 250 Volts

Duolet Dispenser-Display Carton

No. 122

Molded body, brass trim. Smallest and lightest of the Two-Way Plugs. Desirable where an inconspicuous device is more important than the position of the outlets. Standard shade holders can be used.

Mounted ten on a handsome dispenser-display carton, furnished free.

Mfrs. No.	Description	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
122	Duolet	10	2	**$0.75**

BENJAMIN 77—LOCALET

N. E. C. Std.—660 Watts, 250 Volts

No. 77

Localet Display Carton

One piece, molded Bakelite. Friction swivel on plug end permits the side outlet to be turned to any convenient direction for an appliance cord. Lamp, when attached, hangs straight down. Standardized shade-holder can be used. Mounted 10 on a dispenser display carton furnished free.

Mfrs No	Description	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
77	Localet	10	2½	**$0.75**

HEMCO PLUG SOCKETS

660 Watts, 250 Volts

TWIN-LITE

Correct angular shape for the base-board receptacle or under shades and under reflectors or for service in stores, offices, etc. Molded in one piece of condensite

Mfrs No.	Carton	Std. Pkg	Price Each
200	10	100	**$0.75**

Shipping weight, Std. Pkg. 25 lbs.

TACH-LITE

Threaded outlets permit the use of Uno or standard shade holders. Clamp-type shade holders fastened directly above threaded end. Shape permits light to hang straight down.

Mfrs No	Carton	Std Pkg	Price Each
202	10	100	**$0.75**

Shipping weight, Std. Pkg., 25 lbs.

TRIP-LITE

Same design as Tach-Lite with an additional outlet.

Mfrs No.	Carton	Price Each
203	10	**$1.10**

Std Pkg., 50. Shpg. Wt., Std. Pkg., 15 lbs.

TEE-LITE

Designed to fit all standard prong type receptacles. Fits close to baseboard and at same time permits all types of attachment plugs to be connected. Two outlets.

Mfrs No	Carton	Std Pkg	Price Each
205	10	100	**$0.75**

Shpg. Wt. Std. Pkg., 20 Lbs.

BENJAMIN PLUG SOCKET SPECIALTIES

TWO-WAY PLUG CLUSTER

660 Watts, 250 Volts

No. 92

Mfrs. No	No. of Lights	Std Pkg.	Wt Lb Std Pkg	Price Each
†*92	2	10	4	**$0.50**
‡*92½	2	10	4	**.90**
†93	3	10	6	**.90**
†94	4	10	6	**1.60**

†Multiple. ‡Series. *N. E. C. Standard.

PULL CHAIN TWO-WAY PLUG

660 Watts, 250 Volts

Multiple for two lights. Similar to No. 92, except one light may be turned off without interfering with the other.

Mfrs No	Std Pkg	Wt.Lb Std.Pkg.	Price Each
*292	10	6	**$1.00**

*N. E. C. Standard.

No. 292

BENJAMIN ADAPTERS
N. E. C. Standard

MEDIUM BRASS SOCKET EXTENSION
660 Watts—250 Volts

No. 91

No. 91, equipped with bead for shade holder, provides a means of attaching glassware to flush sockets or ceiling receptacles. In long narrow shades where the lamps are set too high for the best effects, No. 91 may be used to lower the lamps 1¼ inches. Standard finish is lacquered brass.

Mfrs. No.	Description	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
91	Extension only	10	50	5	**$0.25**

MOGUL TO MEDIUM REDUCER
660 Watts—250 Volts

No. 98

Reducer No. 98 is designed for adapting mogul screw base sockets for use with medium screw base lamps. When attached, the center contact is lowered $\frac{13}{16}$ inch, thus bringing the filament of the medium base lamp close to its proper position. Both threaded shells are made of copper.

Mfrs. No.	Description	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
98	Reducer Only	50	50	7½	**$0.25**

No. 4397

MOGUL BASE SOCKET EXTENSION
660 Watts—250 Volts

Fixtures designed for 750 and 1000 watt lamps may be converted for use with 300 and 500 watt lamps with the same character of distribution, by the addition of this extension. The device lowers the lamp filament 2½ inches. Body is porcelain; contacts are copper.

Mfrs. No.	Description	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
4397	With Lamp Grip........	10	10	6½	**$1.00**

ADJUSTABLE PLUG SOCKET
660 Watts—250 Volts

No. 99

No. 99, designed to change angle of lamps to the vertical. Swivel shell permits lamp to hang plumb, when plug is screwed home. It may also be used to advantage in any case requiring a change in the angle of attaching. Standard finish is brushed brass.

Mfrs. No.	Description	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
99	Adjustable Plug Socket Only	25	25	5	**$1.00**

PLUG ANGLE SOCKET
660 Watts—250 Volts

No. 941

Adapted for window lighting and for similar places, where it is desired to change the lamp to a position at right angles to the supporting outlet.

Screw threaded shell swivels, permitting attachment without rotating body.

Standard finish is brushed brass.

Mfrs. No.	Description	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
941	Angle Socket, Multiple	10	20	4	**$0.80**

BENJAMIN WIRELESS STAND LAMP CLUSTERS

No. 849

Design of wireless stand lamp clusters offers a close grouping of lamp receptacles in a neat, compact casing. These clusters are easily wired. It is only necessary to bring two wires of the cord through cluster to binding screws and all the outlets are connected.

CLUSTERS COMPLETE

Clusters Complete, consist of pull chain wireless cluster body, top ornament, stem with brass casing, finishing ring and ¼ inch coupling. Coupling for ⅛ inch pipe connection, No. 5099 or flange No. 5094 tapped ¼ inch for attaching to wood supplied each at **$0.05** advance in list. Length over all is approximately 8⅛ inches.

Clusters with two pull chains have an independent switch for each outlet. Clusters equipped with one pull chain are arranged to switch on or off all the lamps simultaneously.

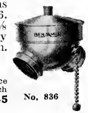
For finish see bottom of page.

Mfrs. No.	No. of Lights	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
With Two Pull Chains				
849	2	5	4⅞	**$1.90**
With One Pull Chain				
839	2	5	4⅞	**1.65**

CLUSTERS ONLY, WITHOUT MOUNTING PARTS

Clusters only are listed below and are without stem and ornament, as shown in illustration No. 836. Clusters have stud at top with ⅛ inch pipe thread; they are regularly tapped ¼ inch pipe size at bottom.

For finish see bottom of page.


No. 836

Mfrs. No.	No. of Lights	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
With Two Pull Chains				
846	2	5	2¾	**$1.45**
With One Pull Chain				
836	2	5	2¾	**1.20**

CLUSTERS FOR DOME FIXTURES
N. E. C. Standard

No. 853

These adjustable clusters are designed for use with pendent or ceiling fixtures. Sockets may be adjusted for best lighting effects. Bushings are tapped for ⅜ inch iron pipe.

With Keyless Sockets

Mfrs. No.	No. of Lights	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
852	2	5	2½	**$1.60**
853	3	5	3	**1.85**

Stand lamp clusters are regularly packed, assembled in individual cartons. For manufacturers' use, clusters will be furnished knocked down and shipped in bulk in quantities of 100 or more, when so specified.

Finish—To harmonize with most fine lamps, standard finish is made Roman Gold. All other finishes are special.

BENJAMIN SOCKETS AND HOLDERS

N. E. C. Standard

"BENCO" WEATHER-PROOF SOCKETS

No. 4200

No. 4335

No. 4207

"Benco" Holders listed below or Benjamin Reflectors with Type "S" Holder listed on another page may be attached to screw thread at bottom of socket. Three finishes: brushed brass for interior lighting, aluminum for general weather-proof work and copper for severe conditions such as seaboard service.

"BENCO" KEYLESS SOCKETS

660 Watts—600 Volts—Medium Base

Benjamin lamp grip, to prevent loosening of lamps under conditions of severe vibration, supplied with these sockets at **$0.10** advance in list.

Mfrs. No.	Finish	Std. Pkg.	Wt Lb. Std.Pkg.	Price Each
Tapped for ½ Inch Iron Pipe Connection				
4200	Polished Aluminum........	50	15	**$0.50**
4202	Brushed Brass	50	15	**.60**
4204	Natural Copper................	50	15	**.60**
Tapped for ⅜ Inch Iron Pipe Connection				
4201	Polished Aluminum........	50	15	**.50**
4203	Brushed Brass	50	15	**.60**
4205	Natural Copper................	50	15	**.60**
Bushed for Drop Cord Up to ½ Inch Diameter				
Have strain relief, effective on 16 gauge and larger conductors.				
4335	Polished Aluminum........	50	15	**.50**
4336	Brushed Brass	50	15	**.60**
4337	Natural Copper................	50	15	**.60**

Carton, 10.

"BENCO" PULL CHAIN SOCKETS

660 Watts, 250 Volts—Medium Base

Similar to the above sockets and weather-proof; in addition, they have pull chain switch. Chain passes down through a space, inside, thoroughly insulated from current carrying parts. Sockets have lamp grip.

Mfrs. No.	Finish	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
Tapped for ½ Inch Iron Pipe Connection				
4225	Polished Aluminum........	50	16	**$1.00**
4207	Brushed Brass	50	16	**1.00**
4236	Natural Copper................	50	16	**1.00**
Tapped for ⅜ Inch Iron Pipe Connection				
4226	Polished Aluminum........	50	16	**1.00**
4208	Brushed Brass	50	16	**1.00**
4237	Natural Copper................	50	16	**1.00**

Carton, 10.

"BENCO" THREADED HOLDERS—(TYPE "S")

2¼-Inch Size

3¼-Inch Size

Especially adapted for attaching shades or reflectors to medium base Benco Sockets and to Benco Outlet Box Fittings, Type S. Holders fit any glass or metal reflectors with standard neck sizes.

Mfrs. No.	Size In.	Carton	Std. Pkg.	Wt.,Lbs. Std.Pkg.	Price Each
Weather-Proof, Polished Aluminum Holders					
4215	2¼	10	50	2	**$0.20**
4217	3¼	10	50	4	**.35**
Weather-Proof, Natural Copper Holders					
4370	2¼	10	50	4¾	**.20**
4372	3¼	10	50	8	**.40**
Brushed Brass Holders					
4377	2¼	10	50	4½	**.25**
4379	3¼	10	50	6¼	**.45**

BENJAMIN MOGUL BASE SOCKETS

N. E. C. Standard—1500 Watts, 600 Volts

METAL TOPS ONLY

No. 2567
Fitting Only

These fittings are for use with Mogul Base Porcelain Sockets; see opposite column illustrating porcelain sockets.

Nos. 2567-2568, for concealed wiring, have screw holes on both $1\frac{5}{32}$ inch and 1½ inch centers. Nos. 3846-3847, for open wiring, have screw holes on both $1\frac{5}{32}$ inch and 1¾ inch centers. Carton, 10; Standard Package, 20.

No. 3846
Fitting Only

Illustrations show fittings attached to Cut-away views of sockets.

Mfrs. No.	Size Tapped In.	For Socket Nos.	Wt.Lbs. Std.Pkg.	Price Each
Cast Aluminum Caps				
2567	½	169-692-696-698	2½	**$0.30**
2568	⅜	169-692-696-698	2½	**.30**
Cast Iron Yokes				
3846	½	69-691-693-695	5	**.15**
3847	⅜	69-691-693-695	5	**.15**

BENCO MOGUL SOCKETS

No. 4210

Bencos 4210-4299 are highly insulated, porcelain-lined, copper shell keyless sockets for use with mogul base lamps. They have screw thread for the attachment of shade holders listed below. Carton, 10; Standard Package, 20.

Mfrs. No.	Size Tapped In.	Shell Material	Finish	Wt.,Lbs. Std.Pkg.	Price Each
4210	⅜	Copper	Br. Brass	15	**$1.40**
4297	½	Copper	Br. Brass	15	**1.40**
4298	⅜	Copper	Nat. Copper	15	**1.40**
4299	½	Copper	Nat. Copper	15	**1.40**

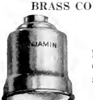
SHADE HOLDERS FOR MOGUL BENCOS

Screw Threaded Shade Holders B4252 and C4252 are designed for use with Mogul "Bencos" 4210-4299. They are of proper depth and will accommodate shades and reflectors with standard 3¼-inch necks. Carton, 10; Standard Package, 20.

No. B4252

Mfrs No.	Size Tapped In.	Shell Material	Finish	Wt.,Lbs. Std.Pkg.	Price Each
B4252	3¼	Copper	Br. Brass	2	**$0.60**
C4252	3¼	Copper	Nat. Copper	2	**.60**

BRASS COVERED MOGUL SOCKETS



No. 4274

Sockets Nos. 4274 and 4276 are porcelain-lined, brass covered devices for interior work. Standard finish is brushed brass.

Mfrs. No.	Size Tapped In.	Carton	Std. Pkg.	Wt.,Lbs. Std Pkg.	Price Each
4274	⅜	10	20	15	**$1.20**
4276	½	10	20	15	**1.20**

BENJAMIN ATTACHMENT PLUGS

SWIVEL ATTACHMENT PLUGS

N. E. C. Standard—660 Watts, 250 Volts

With Fibre Ring

No. 903

These plugs easily attach or unscrew from the lamp socket without kinking or turning the cord. The swivel shell arrangement with fibre ring, readily turns into the socket with the fingers of one hand but the cord does not twist.

Parts clamp the cord ends and make cord knotting unnecessary. Bushing has 13/32-inch opening and takes plain or reinforced cord.

Mfrs. No.	Description	Carton	Std. Pkg.	Wt., Lbs Std. Pkg.	Price Each
903	With 13/32-in. Opening	10	100	6¼	$0.25
903E	With 9/32-in. Opening	10	100	6¼	.25

With Molded Ring

No. 904

Has the same swivel feature as No. 903 but is equipped with molded composition attaching ring to enhance the appearance and give more body to the finger gripping means. It is very desirable for use on household appliance cords.

904	With 13/32-in. Opening	10	100	9⅜	.28

With Fibre Ring and Special Bushing

No. 903-C

Plugs are constructed on same principle as No. 903. Both have metal set screw. No. 903-C has set screw with insulated tip which grips the cord and keeps braid from fraying. No. 903-F is for use with reinforced cord or flexible cable.

903-C	With 13/32-in. Opening	10	100	9⅜	.28
903-F	With ½-in. Opening	10	100	9⅜	.50

HEAVY SWIVEL ATTACHMENT PLUG WITH CHUCK TYPE BUSHING

N. E. C. Standard—660 Watts, 250 Volts

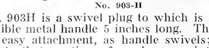
No. 916

The chuck type bushing of this plug takes a firm grip on any of the standard portable cords up to 9/16 inch diameter. Attachment is made without kinking or turning cord because the swivel shell is the only part that rotates. This plug has large molded ring which can readily be grasped with a gloved hand. It is adaptable for rough service such as is found in railroad shops and yards, industrial plants, etc.

Mfrs. No.	Description	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
916	Chuck Cord Grip	10	3	$0.85

SWIVEL HANDLE ATTACHMENT PLUG

N. E. C. Standard—660 Watts, 250 Volts



No. 903-H

No. 903H is a swivel plug to which is attached a flexible metal handle 5 inches long. This facilitates easy attachment, as handle swivels; and, it protects that portion of cord exposed to wear. Cord gripping cap takes reinforced cable up to 13/32 inch.

Mfrs. No.	Description	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
903H	With Flexible Handle	10	1⅗	$0.60

BENJAMIN ATTACHMENT PLUGS

SEPARABLE ATTACHMENT PLUG

N. E. C. Standard—660 Watts, 250 Volts

No. 1001

This is the standard form of separable plug with cap, fitting flush receptacles arranged to take parallel blades.

Cap is of high heat molded insulating material with milled edges to facilitate removal. Large binder screws are easily accessible. Cord opening is 13/32 inch with ample space for tying. Cap rating is 10 amp.

Base is of same material as cap, and has parallel double springs making contact on both sides of each blade. It fits any Edison medium base socket or receptacle.

Mfrs. No.	Description	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1001	Cap and Base	25	250	62½	$0.20
938	Cap Only	10	100	6¼	.10
940	Base Only	10	250	15⅝	.10

SOLID ATTACHMENT PLUG

N. E. C. Standard—660 Watts, 250 Volts

No. 907

No. 907 is small and is simply constructed of few parts. The top and body are so contrived that in the work of wiring they are easily assembled, while a slight twist, just as the parts are locked, produces an effective cord grip. Cord opening is 13/32 inches.

Mfrs. No.	Description	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
907	Screw Connections with Compo. Top	10	100	6¼	$0.15

PORTABLE EXTENSION CORD CONNECTOR

N. E. C. Standard—660 Watts, 250 Volts

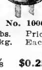
No. 935

A handy device for attaching additional cord lengths beyond reach of the regular appliance cord, or for disconnecting in the length of a cord. Portable cords may be made to extend as far as they are needed. Body is of high heat molded composition, with double blade spring contacts. Cord opening is 13/32 inch with ample tying space.

Mfrs. No.	Description	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
935	Cord Connector complete	10	100	12½	$0.40
936	Connector Body only	10	100	6¼	.30
938	Standard Cap only	10	100	6¼	.10

PARALLEL BLADE ADAPTER

N. E. C. Standard—660 Watts, 250 Volts



No. 1006

The Parallel Blade Adapter makes it possible to use an Edison Screw base lamp or plug with a standard slotted base receptacle.

Mfrs. No.	Description	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1006	Brass Shell, Fibre Lined	10	30	1⅞	$0.25

C-H FEED THROUGH SWITCHES

Schedule H

C-H SEVENTY-FIFTY SWITCH

6 Amperes, 125 Volts—3 Amperes, 250 Volts

Made entirely of molded heatproof thermoplax. Split casing makes it especially easy to wire.

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
7050	10	50	8	$0.50

C-H SWITCH CONNECTOR

Combines in one unit a universal connector which fits all makes of heating appliances and switch. Thermoplax heat proof insulation is used for the casing and heat proof buttons on the switch.

Mfrs No.	Unit *Pkg.	Std Pkg.	Wt Lbs. Std. Pkg	Price Each
7051	10	50	15	**$0.80**

C-H PENDENT SWITCHES

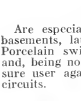
PORCELAIN

Schedule H

Are especially adapted for use in bathrooms, basements, laundries and other damp locations. Porcelain switches will not corrode like brass and, being non-conductors of electricity, they insure user against shock due to accidental short circuits.

SINGLE POLES

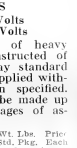
6 Amperes, 125 Volts
3 Amperes, 250 Volts



Switch contacts are of heavy phosphor bronze. Constructed of glazed porcelain in gray standard finish. White can be supplied without extra charge when specified. Standard package may be made up of unbroken unit packages of assorted colors.

Mfrs. No.	Type	Unit Pkg.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
7000	Single Pole	10	100	30	**$0.50**

10 Amperes, 125 Volts
5 Amperes, 250 Volts



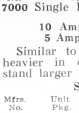
Similar to the above type, but heavier in construction to withstand larger current.

Single Pole

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
7010	10	100	40	**$0.70**

TWO CIRCUIT TYPES

6 Amperes, 125 Volts
3 Amperes, 250 Volts



Two circuit pendent switches made possible the separate control of two lamps, two groups of lamps or a ceiling fan with lamps from the same switch. Standard finish, gray. White supplied when specified. Standard package may be made up of unit packages of assorted colors.

Mfrs. No	Type	Unit Pkg.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
7020	Two Circuit	10	50	25	**$1.00**

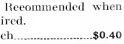
SMITH "REAL" CONNECTOR PLUGS

Approved by underwriters to fit universally flat and round terminals of electric irons and appliances. Recommended when highest quality article is desired.

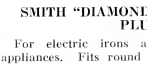
Packed 10 to Box—Price Each.....**$0.40**

SMITH "DIAMOND S" CONNECTOR PLUGS

For electric irons and appliances. Fits round or flat terminals. Packed 10 to box. Price each **$0.40.**



SMITH "REAL" CORD AND PLUGS



Includes "Real" Universal Connector Plug with best high grade asbestos covered heater cord and two-piece attachment plug.

6 Foot Lengths—Each.....**$1.40**
7 Foot Lengths—Each..... **1.45**
8 Foot Lengths—Each..... **1.50**

SMITH "DIAMOND S" CORD AND PLUG

Includes a "Diamond S" Universal iron appliance plug and asbestos heater cord with two piece attachment plug.

6 Foot Lengths—Each.....**$1.30**
7 Foot Lengths—Each..... **1.35**
8 Foot Lengths—Each..... **1.40**

FEDERAL CLAMP BUSHINGS

PORCELAIN

Nos. A1-A6

Mfrs. No.	Diam. In. – Inside	Outside	Std. Pkg.	Price Each
A1	5/16	11/16	300	**$0.05**
A1 ½	3/8	13/16	250	**.06**
***A2**	13/32	13/16	250	**.06**
A3	7/16	1	250	**.07**
A4	3/4	1 3/8	150	**.08**
A5	1 1/16	1 5/8	100	**.12**
A6	1 5/8	2 1/4	48	**.25**

Fits K. O. in standard outlet box.

Mfrs. No.	B1
Diameter Inside, inch	5/16
Diameter Outside, inch	11/16
Length, inch	1 3/4
Standard Package	100
Price Each	$0.10

ANGLE TYPE

Special shape for outdoor work, preventing water from entering around wire. Also used instead of regular bushing where wires leave surface at an angle, preventing damage to wire or insulation by sudden bending of bushing.

No. K1

Mfrs. No	Diameter, In. – Inside	Outside	Std. Pkg.	Price Each
K1	5/16	11/16	100	$0.15
K2	13/32	13/16	100	.20

KLIEGL INDESTRUCTIBLE CONNECTORS

Listed by Underwriters' Laboratories. For all theatrical and commercial purposes.

No. 950

No. 955

Made of hard black fibre, provided on each end with an approved cable clamp, having teeth which bite into cable, and hold cable firmly by its outer insulation.

Two-Wire Type

Mfrs. No.	Amp.	Volts	For Cable No.	Price Each
950	5	250	14	**$1.10**
955	15	250	12	**1.50**
956	30	250	10	**2.40**
957	60	250	6	**6.00**
958	100	250	2	**10.50**
959	200	250	000	**19.80**

Three-Wire Type

3950	5	125–250	14	**2.40**
3955	15	125–250	14	**3.60**
3956	30	125–250	10	**5.00**
3957	60	125–250	6	**7.00**
3958	100	125–250	2	**19.80**

FOR ASBESTOS AND STAGE CABLE

For connecting asbestos wire to end of stage cable.

No. 960

250 Volts

Mfrs. No.	Description	Amp.	Wt. Oz.	Price Each
960	For Asbestos only	30	10	**$2.40**
960A	For Asbestos and Cable	30	10	**2.40**
961	For Asbestos only	15	6	**1.50**
961A	For Asbestos and Cable	15	6	**1.50**
962	For Asbestos only	5	4	**1.10**
962A	For Asbestos and Cable	5	4	**1.10**

No. 965

BATTERY CHARGING TYPE

Made in two parts, the inner of insulating material and the outer casing of aluminum. Illustration shows the two parts combined. Furnished with cable clamp doors for No. 6 cable.

Mfrs. No.	Amperes	Volts	Price Each
965	50	125	**$5.50**

BRANCH-OFF CONNECTORS

No. 990 is a device for taking electric connections from one feed cable. Cable passes through the receptacle and the conductors are fastened into it by set screws. The cable is held firmly by its outer insulation by approved cable clamps on either end. The plug which holds the male contacts is regular No. 950 connector which is interchangeable.

No. 990

Mfrs. No	Description	Amp.	Volts	Price Each
990	Branch-Off Complete with Plug	5	250	**$2.75**
995	Double Branch-Off with Two Plugs Each	5	250	**3.50**

MULTIPLE CIRCUIT TYPE

Designed to take three separate connections from one feed cable.

No. 9955

Mfrs. No.	Amp.	Volts	For Cable No.	Price Each
2950	5	250	14	**$3.60**
2955	15	250	12	**5.00**

KLIEGL STAGE POCKETS AND PLUGS

FLOOR FLUSH TYPE

Two-Wire—50 Amperes,, 250 Volts

Mfrs. No.	No. of Sections	Wt. Lbs.	Price Each
350	1	20	**$10.00**
355	2	27½	**20.00**
360	3	38	**30.00**
365	4	48	**40.00**
301	Reversible Plug		**2.00**
301A	Arc		**2.00**
301B	Inc. (25 Amp.)		**2.00**

WALL FLUSH TYPE—IRON

No. 310

Mfrs. No.	Sec.	Amp.	Volts	Wire	Wt. Lbs.	Price Each
310	1	50	250	2	8	**$10.00**
311	2	50	250	2	11½	**20.00**
312	3	50	250	2	27	**30.00**
313	4	50	250	2	35	**40.00**
301	Extra Plugs				½	**2.00**
Lock and Key per Pocket extra						**1.50**

WALL FLUSH TYPE—BRASS

Mfrs. No.	Amperes	Volts	Wire	Wt. Lbs.	Price Each
309	50	250	2	6¼	**$11.50**
Lock and Key Per Pocket Extra					**1.50**

WALL POCKETS AND PLUGS

No. 307

No. 307

No. 301

Mfrs. No.	Amp.	Volts	Wire	Price Each
307	5–50	250	2	**$8.00**
317	2–50	250	2	**14.00**
318	3–50	250	2	**21.00**
319	4–50	250	2	**28.00**
1307	100	250	2	**16.00**
4307	200	125	2	**25.00**
2307	30	250	3	**17.00**
3307	100	250	3	**30.00**
337	50	500	2	**18.00**
1337	50	250–500	4	**22.50**

AUTOMOBILE CHARGING TYPE

No. 305

Mfrs. No.	Description	Price Each
305	For 1 Inch Conduit at Bottom	**$10.00**
306	For 1 Inch Conduit at Top	**10.00**
301A	Plug for No. 10 Cable	**2.00**
303	Plug for No. 6 Cable	**2.00**

No. 392

PORTABLE POCKETS OR PLUGGING BOXES

Lined with asbestos there can be no short circuit in the spider pocket, as the polarities are separated by slate, carrying the busbars and fuses on either side. They are fireproof.

Link Fuse Type—50 Amp., 250 Volts

Two-Wire Main Two-Wire Outlet			Three-Wire Main Two-Wire Outlet		
Mfrs. No.	No. Sec.	Price Each	Mfrs. No.	No. Sec.	Price Each
390	2	**$13.00**	**380**	2	**$15.00**
391	4	**25.00**	**381**	4	**28.00**
392	6	**37.50**	**382**	6	**42.00**
393	8	**50.00**	**383**	8	**56.00**

Cartridge Fuse Type—10-30 Amp., 250 Volts

391B	4	**27.00**	**381B**	4	**29.00**
392B	6	**40.00**	**382B**	6	**43.50**

60 Amp., 250 Volts

391C	4	**27.00**	**381C**	4	**29.00**
392C	6	**40.00**	**382C**	6	**42.00**

PLUGS AND RECEPTACLES

WESTINGHOUSE—Schedule L

A simple and satisfactory plug connector adapted to a great variety of uses—connecting stage lighting apparatus, portable motors, electrically-driven tools, and for charging automobiles. Polarized plugs will be supplied without additional charge when so ordered.

PLUGS AND RECEPTACLES

Two-Pole Plug and Receptacle

Three-Pole Plug and Receptacle

TWO-POLE

50 Amperes, 125 Volts

Mfrs. No.	Description	Std. Pkg.	Wt.Lb. Boxed	Price Each
W22914	Plug and Receptacle	15	5	$3.50
W22915	Plug Only	15	2	1.25
W22916	Receptacle Only	15	3	2.25

50 Amperes, 250 Volts

W22917	Plug and Receptacle	10	5	6.00
W22918	Plug Only	10	2	2.50
W22919	Receptacle Only	10	3	3.50

100 Amperes, 250 Volts

W25022	Plug and Receptacle	10	11	7.50
W25023	Plug Only	10	2	3.25
W25024	Receptacle Only	10	10	4.25

THREE-POLE

50 Amperes, 250 Volts

W22920	Plug and Receptacle	10	15	11.00
W22921	Plug Only	10	3	4.00
W22922	Receptacle Only	10	12	7.00

100 Amperes, 250 Volts

W25025	Plug and Receptacle	10	21	14.85
W25026	Plug Only	10	3	5.40
W25027	Receptacle Only	10	19	9.45

50 Amperes, 600 Volts

W25028	Plug and Receptacle	10	12	35.00
W25029	Plug Only	10	4	23.00
W25030	Receptacle Only	10	10	12.00

FOUR-POLE

50 Amperes, 250 Volts

W25031	Plug and Receptacle	10	11	13.75
W25032	Plug Only	10	2	5.00
W25033	Receptacle Only	10	10	8.75

PLUGS AND RECEPTACLES

WESTINGHOUSE—Schedule L

WALL BOXES FOR PLUGS AND RECEPTACLES

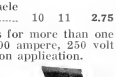
TWO-POLE

When installed in the lecture rooms of educational institutions or similar places, these plugs and receptacles should be used with a flush type box equipped with a lock and key. Prices quoted on application.

Mfrs. No.	Description	Std. Pkg.	Wt.Lb. Boxed	Price Each
W22923	Box for One Two-Pole, 50 Ampere, 125 Volt Plug and Receptacle Only	10	10	$2.25
W22880	Box for One Two-Pole, 50 Ampere, 250 Volt Plug and Receptacle Only	10	11	2.75

Note.—Prices of wall boxes for more than one plug and receptacle, or for 100 ampere, 250 volt plugs and receptacles, quoted on application.

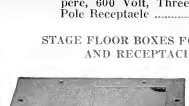
THREE AND FOUR-POLE



Wall boxes will be made to accommodate larger sizes of three and four-pole plugs and receptacles. Prices quoted on application.

Mfrs. No.	Description	Std. Pkg.	Wt.Lb. Boxed	Price Each
W30200	Box Only for 50 Ampere, 250 Volt, Three and Four-Pole Plugs and Receptacles	10	20	$3.50
W30534	Box Only for 100 Ampere, 250 Volt, Three-Pole Receptacle	....	....	7.00
W30535	Box Only for 50 Ampere, 600 Volt, Three-Pole Receptacle	....	....	10.00

STAGE FLOOR BOXES FOR PLUGS AND RECEPTACLES



Substantially made of heavy gauge steel supplied with either cast iron or boiler plate cover, and open bottom. Will accommodate two two-pole, 125 or 250 volt plugs and receptacles of the 50 ampere size only.

Mfrs. No.	Description	Std. Pkg.	Wt.Lb. Boxed	Price Each
W22924	Box Only, with Cast Iron Cover	10	30	$4.75
W22925	Box Only, with Boiler Plate Cover	10	30	8.00

Note.—Prices of floor boxes to accommodate three or four-pole plugs and receptacles, or plugs of larger capacity quoted on request.

WESTINGHOUSE TWO-WIRE CHARGING RECEPTACLES AND PLUGS

These receptacles and plugs are used in automobile garages, roundhouses, factories and wherever it is desirable to have a detachable connection, as on a battery-charging circuit. Two styles are listed; one especially adaptable to heavy automobile service, such as auto trucks; the other for roundhouse and factory service.

AUTO TRUCK TYPE
100 Amperes—250 Volts

No. 136168—Receptacle

Nos. 91193 and 108380—Plug

This receptacle and plug are made for heavy service. Although particularly adapted for use with electric auto trucks, their durable construction makes them desirable for use in all battery charging service on vehicles or otherwise. The insulation of both receptacle and plug is such that it is practically impossible to short-circuit either.

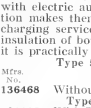
Type 507 Charging Receptacle

Mfrs. No.	Description	Wt. Lb. Net	Wt. Lb. Shpg.	Price Each
136468	Without Cable	4	8	$10.00

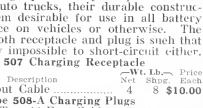
Type 508-A Charging Plugs

91193	With Two 11-Foot Cables	7	14	18.00
108380	With Two 1-Foot Cables	3	6	11.00

ROUNDHOUSE AND FACTORY TYPE
25 Amperes—250 Volts



No. 112537—Plug



No. 112538—Receptacle

This receptacle and plug are especially adapted for hard service and rough usage. They are used in engine houses and in other places where particularly strong and durable apparatus is desired.

Charging Plugs

Mfrs. No.	Description	Wt. Lb. Net	Wt. Lb. Shpg.	Price Each
104391	Without Cable	3	6	$4.00
112537	With Two 1-Foot cables	4	8	5.25

Charging Receptacles

104392C	Without Cable	4	6	5.75
112538	With Two 1-Foot Cables	5	8	7.00

Note.—Number and price include the receptacle or plug complete as described, except that in the case of the roundhouse and factory type receptacles and plugs without cables, the insulating compound around the terminals must be put in by the purchaser after inserting the cables.

BRYANT BRASS WIRE CONNECTORS
FOR SOLID AND STRANDED CABLE
Schedule H

No. 200

With Two Iron Set Screws

Mfrs. No.	Size In.	Diam. Hole In.	Largest Wire Solid	Largest Wire Stranded	Std. Pkg	Price Each
200	1 1/2 x 7/8	.106	12	.....	100	$0.05
201	1 1/2 x 7/8	.147	8	.....	100	.06
202	1 3/4 x 3/8	.185	6	8	100	.07
203	1 7/8 x 7/8	.221	4	5	100	.08
204	1 7/8 x 1 1/2	5/16	2	3	100	.10
205	1 7/8 x 7/8	11/32	0	2	50	.12
206	1 7/8 x 5/8	3/8	00	1	50	.14

With Four Iron Set Screws

No. 207

Mfrs. No.	Size In.	Diam. Hole In.	Largest Wire Solid	Largest Wire Stranded	Std. Pkg	Price Each
207	1 7/8 x 7/8	.221	4	5	100	$0.09
208	1 7/8 x 1 1/2	5/16	2	3	100	.11
209	1 7/8 x 7/8	11/32	0	2	50	.13
210	1 7/8 x 5/8	3/8	00	1	50	.15
211	2 x 1 1/2	7/16	000	00	50	.22
212	2 x 5/4	1/2	0000	000	50	.28

FRANKEL SOLDERLESS CONNECTORS
SERVICE BOX PLUGS
Frankel No. 2566

Service box plug connectors are used for making connections to fuses where a round stud is required on the connector for use in a screw clamp terminal. The price covers connector of size specified. Special prices will be quoted on connectors of larger sizes.

SERVICE BOX LUGS
Frankel No. 2567

Service box lugs are used for connecting wires or cables to fuses where the terminal is a stud with a clamping nut or binding screw. The contact surface is slotted so that it can be slipped over the stud or screw without removing the screw or nut. The lug ends are tapered to slip under the washer. The price covers connector of the size listed with any size slot as ordered.

Size of Wire or Cable	Frankel No. 2566 Size Plug, In. Length	Diam	Price Each	Frankel No. 2567 Size Base, In. Width	Length	Price Each
14 to 4	5/8	3/8	$0.25	3/4	3/4	$0.25
3 to 1	3/4	3/8	.30	3/4	3/4	.30
0	3/4	7/16	.40	3/4	1	.40
00	7/8	7/16	.50	7/8	1	.50
000	1	1/2	.60	1	1 1/2	.60
0000	1	1/2	.65	1	1 1/2	.70

FRANKEL SOLDERLESS CONNECTORS

TWO-WAY CONNECTORS

Are used to splice two conductors of the same size end to end. For splicing conductors of different sizes see Reducers. The number includes complete terminal drilled for wire or cable, as stated in the table. Number and price cover connector with plain finish only.

Frankel No. 2560—B. & S. Stranded

Mfrs. No.	Size of W. or C.	Price Each	Mfrs. No.	Size of W. or C.	Price Each
276015	14	**$0.35**	**276031**	80000 C. M.	**$0.50**
276016	12	**.35**	**276032**	100000 C. M.	**.60**
276017	10	**.35**	**276033**	150000 C. M.	**.87**
276018	9	**.35**	**276034**	200000 C. M.	**1.05**
276019	8	**.35**	**276035**	250000 C. M.	**1.30**
276020	7	**.35**	**276036**	300000 C. M.	**1.50**
276021	6	**.35**	**276037**	350000 C. M.	**1.75**
276022	5	**.40**	**276038**	400000 C. M.	**2.00**
276023	4	**.40**	**276039**	450000 C. M.	**2.25**
276024	3	**.40**	**276040**	500000 C. M.	**2.60**
276025	2	**.45**	**276041**	550000 C. M.	**2.90**
276026	1	**.50**	**276042**	600000 C. M.	**3.25**
276027	0	**.60**	**276043**	650000 C. M.	**3.50**
276028	00	**.75**	**276044**	700000 C. M.	**3.75**
276029	000	**.90**	**276045**	750000 C. M.	**4.00**
276030	0000	**1.10**	**276046**	800000 C. M.	**4.25**
			276047	850000 C. M.	**4.50**

Mfrs. No.	Size of Wire or Cable	Price Each
276048	900000 C. M. Stranded	**$4.75**
276049	950000 C. M. Stranded	**5.00**
276050	1000000 C. M. Stranded	**5.25**
276051	1050000 C. M. Stranded	**5.40**
276052	1100000 C. M. Stranded	**5.50**
276053	1150000 C. M. Stranded	**5.65**
276054	1200000 C. M. Stranded	**5.75**
276055	1250000 C. M. Stranded	**6.00**
276056	1300000 C. M. Stranded	**6.25**
276057	1350000 C. M. Stranded	**6.65**
276058	1400000 C. M. Stranded	**7.00**
276059	1450000 C. M. Stranded	**7.40**
276060	1500000 C. M. Stranded	**7.75**
276061	1550000 C. M. Stranded	**8.15**
276062	1600000 C. M. Stranded	**8.50**
276063	1650000 C. M. Stranded	**8.90**
276064	1700000 C. M. Stranded	**9.25**
276065	1750000 C. M. Stranded	**9.65**
276066	1800000 C. M. Stranded	**10.00**
276067	1850000 C. M. Stranded	**10.40**
276068	1900000 C. M. Stranded	**10.75**
276069	1950000 C. M. Stranded	**11.15**
276070	2000000 C. M. Stranded	**11.50**
276071	2500000 C. M. Stranded	**12.25**

Solid

Mfrs. No.	Size of W. or C.	Price Each	Mfrs. No	Size of W. or C.	Price Each
276072	18	**$0.35**	**276081**	5	**$0.40**
276073	16	**.35**	**276082**	4	**.40**
276074	14	**.35**	**276083**	3	**.40**
276075	12	**.35**	**276084**	2	**.45**
276076	10	**.35**	**276085**	1	**.50**
276077	9	**.35**	**276086**	0	**.60**
276078	8	**.35**	**276087**	00	**.75**
276079	7	**.35**	**276088**	000	**.90**
276080	6	**.35**	**276089**	0000	**1.10**

FRANKEL SOLDERLESS CONNECTORS

THREE-WAY

Are used to make a main line splice that is on a straight line, and a branch splice off of the main. If the main does not have to be cut except to make this connection, use cable taps. They can be furnished to connect any three sizes of solid wire or stranded cable.

All three-way connectors are special owing to the large number of possible combinations of sizes in main or branch. Orders should specify size of wire or cable for both ends of main, branch and finish desired.

Price covers connection with mains and branch of same size. To ascertain the list price of connectors having different size mains and branch, take one-third the list price of each of the three required sizes and the sum of these three results will be the total price.

Frankel No. 2561

Size B. & S. Wire or Cable	Price Each	Size B. & S. Wire or Cable	Price Each
14 to 6	**$0.55**	750000	**$6.00**
5 to 3	**.60**	800000	**6.40**
2	**.70**	850000	**6.75**
1	**.75**	900000	**7.00**
0	**.90**	950000	**7.50**
00	**1.10**	1000000	**7.80**
000	**1.35**	1100000	**8.25**
0000	**1.65**	1200000	**9.00**
250000	**1.95**	1300000	**9.75**
300000	**2.25**	1400000	**10.50**
350000	**2.60**	1500000	**11.20**
400000	**3.00**	1600000	**12.00**
450000	**3.40**	1700000	**12.75**
500000	**3.90**	1800000	**13.50**
550000	**4.40**	1900000	**14.25**
600000	**4.80**	2000000	**15.00**
650000	**5.25**	2500000	**18.00**
700000	**5.60**		

Wire and cable sizes are B. & S. standard gauge.

GROUNDING TAP CONNECTORS

Grounding tap connectors are used to connect wire or cable to a gas pipe for grounding a circuit. The pipe end of the connector is threaded to receive a standard gas pipe of size specified. All grounding tap connectors are special owing to the possible combinations of sizes.

Special prices will be quoted on grounding tap connectors of sizes other than listed below.

Frankel No. 2565

Size of Wire or Cable	Size of Pipe, In.	Price Each
14 to 1	⅜	**$0.40**
14 to 1	½	**.45**
14 to 1	¾	**.60**
14 to 1	1	**.75**
0 to 0000	1¼	**.75**
0 to 0000	1½	**.80**
0 to 0000	1	**.85**

Wire and cable sizes are B. & S. standard gauge.

FRANKEL SOLDERLESS CONNECTORS

U CONNECTORS

Used where it is desired to connect the ends of two parallel leads together. Can be supplied with outlets of two different sizes. Specify distance between centers of outlets. All U connectors are special.

Frankel No. 2558

Size B. & S. Wire or Cable	Price Each	Size B. & S. Wire or Cable	Price Each
14 to 6	$0.45	750000	$5.00
5 to 3	.50	800000	5.30
2	.55	850000	5.70
1	.65	900000	6.00
0	.75	950000	6.25
00	.95	1000000	6.60
000	1.15	1100000	6.90
0000	1.40	1200000	7.20
250000	1.65	1300000	7.80
300000	1.90	1400000	8.75
350000	2.20	1500000	9.75
400000	2.50	1600000	10.60
450000	2.80	1700000	11.60
500000	3.25	1800000	12.50
550000	3.65	1900000	13.50
600000	4.00	2000000	14.50
650000	4.40	2500000	15.50
700000	4.70		

Y CONNECTORS

Used to make a three-way splice when the cables are not at right angles to each other. Can be furnished to connect any three sizes of wire, cable or rod. Plain finish. To ascertain list price of special size connectors of different sizes, take two-thirds of the price of the larger size and one-third of the other size. All Y connectors are special.

Frankel No. 2559

Size B. & S. Wire or Cable	Price Each	Size B. & S. Wire or Cable	Price Each
14 to 6	$0.60	750000	$7.00
5 to 3	.70	800000	7.50
2	.80	850000	8.00
1	.90	900000	8.25
0	1.10	950000	8.75
00	1.30	1000000	9.25
000	1.60	1100000	9.75
0000	2.00	1200000	10.00
250000	2.30	1300000	11.00
300000	2.70	1400000	12.50
350000	3.00	1500000	13.50
400000	3.50	1600000	15.00
450000	4.00	1700000	16.50
500000	4.50	1800000	17.50
550000	5.10	1900000	19.00
600000	5.70	2000000	20.25
650000	6.20	2500000	21.50
700000	6.50		

FRANKEL SOLDERLESS CONNECTORS

PLUG-STUD TYPE

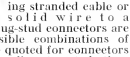
Frankel No. 2563

Used for connecting stranded cable or solid wire to a threaded stud or rod. All plug-stud connectors are special, owing to the possible combinations of sizes. Special prices will be quoted for connectors drilled and tapped for larger diameter studs than the size specified for wire or cable.

STUD-CONNECTORS

Frankel No. 2564

Are used to connect wire or cable to block terminals by screwing the stud end into a threaded hole.



Size B. & S. Wire or Cable	Price Each	Size B. & S. Wire or Cable	Price Each
14 to 6	$0.30	750000	$3.20
5 to 3	.35	800000	3.40
2	.40	850000	3.60
1	.45	900000	3.80
0	.50	950000	4.00
00	.60	1000000	4.20
000	.70	1100000	4.40
0000	.80	1200000	4.60
250000	1.00	1300000	5.00
300000	1.20	1400000	5.40
350000	1.40	1500000	6.20
400000	1.60	1600000	6.40
450000	1.80	1700000	6.80
500000	2.00	1800000	7.20
550000	2.30	1900000	7.60
600000	2.60	2000000	8.00
650000	2.80	2500000	9.80
700000	3.00		

ELBOWS—Frankel No. 2562

Are used to connect conductors at right angles, these conductors being of the same or any two different sizes. Price covers connector with both ends of the same size.*

REDUCERS

Frankel No. 2586

Are used for connecting two conductors of different sizes of cable or solid wire.*

Size B. & S. Wire or Cable	Price Each	Size B. & S. Wire or Cable	Price Each
14 to 6	$0.35	750000	$4.00
5 to 3	.40	800000	4.25
2	.45	850000	4.50
1	.50	900000	4.75
0	.60	950000	5.00
00	.75	1000000	5.25
000	.90	1100000	5.50
0000	1.10	1200000	5.75
250000	1.30	1300000	6.25
300000	1.50	1400000	7.00
350000	1.75	1500000	7.75
400000	2.00	1600000	8.50
450000	2.25	1700000	9.25
500000	2.60	1800000	10.00
550000	2.90	1900000	10.75
600000	3.25	2000000	11.50
650000	3.50	2500000	12.25
700000	3.75		

*To ascertain price of connectors having different size ends, take one-half the price of each of the two required sizes and the sum of these results will be the total price.

FRANKEL SOLDERLESS CONNECTORS

CABLE TAPS

Used to connect a branch of solid wire or stranded cable to main cable or wire. The tap consists of a hook for clamping on the main, and a connector attached to the shank of the hook for taking the branch. Number covers cable tap for same size main and branch with plain finish only. To ascertain list price of special size connectors of different sizes, take two-thirds of the price of the larger size plus one-third the small size.

Frankel No. 2575—B. & S. Stranded

Mfrs. No.	Size of W. or C.	Price Each	Mfrs. No.	Size of W or C.	Price Each
276090	14	$0.55	276106	80000 C. M.	$0.85
276091	12	.55	276107	100000 C. M.	.90
276092	10	.55	276108	150000 C. M.	1.30
276093	9	.55	276109	200000 C. M.	1.60
276094	8	.55	276110	250000 C. M.	1.95
276095	7	.55	276111	300000 C. M.	2.25
276096	6	.55	276112	350000 C. M.	2.60
276097	5	.60	276113	400000 C. M.	3.00
276098	4	.60	276114	450000 C. M.	3.40
276099	3	.60	276115	500000 C. M.	3.90
276100	2	.70	276116	550000 C. M.	4.40
276101	1	.85	276117	600000 C. M.	4.80
276102	0	.90	276118	650000 C. M.	5.25
276103	00	1.10	276119	700000 C. M.	5.60
276104	000	1.35	276120	750000 C. M.	6.00
276105	0000	1.65	276121	800000 C. M.	6.40
			276122	850000 C. M.	6.75

Mfrs. No.	Size of Wire or Cable	Price Each
276123	900000 C. M. Stranded	$7.00
276124	950000 C. M. Stranded	7.50
276125	1000000 C. M. Stranded	7.80
276126	1050000 C. M. Stranded	8.00
276127	1100000 C. M. Stranded	8.25
276128	1150000 C. M. Stranded	8.65
276129	1200000 C. M. Stranded	9.00
276130	1250000 C. M. Stranded	9.40
276131	1300000 C. M. Stranded	9.75
276132	1350000 C. M. Stranded	10.15
276133	1400000 C. M. Stranded	10.50
276134	1450000 C. M. Stranded	10.85
276135	1500000 C. M. Stranded	11.20
276136	1550000 C. M. Stranded	11.60
276137	1600000 C. M. Stranded	12.00
276138	1650000 C. M. Stranded	12.40
276139	1700000 C. M. Stranded	12.75
276140	1750000 C. M. Stranded	13.15
276141	1800000 C. M. Stranded	13.50
276142	1850000 C. M. Stranded	13.90
276143	1900000 C. M. Stranded	14.25
276144	1950000 C. M. Stranded	14.65
276145	2000000 C. M. Stranded	15.00
276146	2500000 C. M. Stranded	18.00

Solid

Mfrs. No.	Size of W. or C.	Price Each	Mfrs. No.	Size of W. or C.	Price Each
276147	18	$0.55	276156	5	$0.60
276148	16	.55	276157	4	.60
276149	14	.55	276158	3	.60
276150	12	.55	276159	2	.70
276151	10	.55	276160	1	.85
276152	9	.55	276161	0	.90
276153	8	.55	276162	00	1.10
276154	7	.55	276163	000	1.35
276155	6	.55	276164	0000	1.65

FRANKEL SOLDERLESS CONNECTORS

Frankel No. 2576

Frankel No. 2577

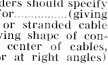
EQUALIZERS

Equalizers are used to equalize the load on two power cables that run parallel or at right angles to each other. They are made by combining two cable taps and are installed in the same manner that a cable tap is connected to a main. They are furnished with connecting rod straight or bent, as desired.

All equalizers are special because of the possible combinations of sizes. Orders should specify Frankel No. 2576 or No. 2577 for.....(giving number or size of solid wire or stranded cable for each end) and.....(giving shape of connecting rod, distance between center of cables, and stating whether parallel or at right angles) .....finish.

The price of equalizers is the same as that of two cable taps of corresponding size plus a special price on connecting rods, which may be obtained on application.

SWIVEL LUGS



Swivel lugs consist of a combination of two round-surface lugs having the contact surface of one mounted on the contact surface of the other in such a way that a swiveling motion is permitted and cables or wires of any size coming from any two different directions may be connected.

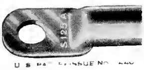
All swivel lugs are special because of the possible combinations of sizes. Orders should specify Frankel No. 2574 for.....(giving number or size of solid wire or cable for each end)..... finish.

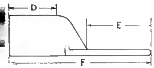
The price covers lug with both ends of the same size. To ascertain price of lugs having different size ends, take one-half the price of each of the two required sizes and the sum of these results will be the total price.

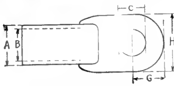
Frankel No. 2574

Size B. & S. Wire or Cable	Price Each	Size B. & S. Wire or Cable	Price Each
14 to 6	$0.50	750000	$5.80
5 to 3	.60	800000	6.20
2	.70	850000	6.60
1	.80	900000	7.00
0	.90	950000	7.40
00	1.10	1000000	7.80
000	1.30	1100000	8.20
0000	1.60	1200000	8.60
250000	1.90	1300000	9.20
300000	2.20	1400000	9.80
350000	2.60	1500000	10.40
400000	2.90	1600000	11.20
450000	3.30	1700000	12.00
500000	3.60	1800000	13.00
550000	4.00	1900000	14.00
600000	4.60	2000000	15.00
650000	5.00	2500000	19.00
700000	5.40		

SHERMAN SOLDERING LUGS





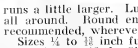


SIDE FORMED

Amp. Cap. Rub.Ins.Cond. N. E C. Stand.	Max. Std. Wire B.&S.Gauge	Approx Wt.Lb Per 1000	Price Per 1000 Round	Square
†25	10	4	......	**$26.25**
35	8	5¼	**$27.75**	**27.75**
50	6	9¼	**32.25**	**32.25**
70	4	13¾	**45.50**	**50.05**
90	2	22½	**64.12**	**70.52**
125	0	29¼	**75.50**	**83.04**
150	00	43½	**98.00**	**107.80**
175	000	51	**130.50**	**143.54**
225	0000	65	**163.87**	**180.25**
237	*250000	145	**310.00**	**341.00**
325	*400000	190	**482.50**	**482.50**
362	*450000	275	**702.50**	**702.50**
400	*500000	315	**735.00**	**735.00**
450	*600000	375	**762.50**	**762.50**
550	*800000	640	**920.00**	**920.00**
650	*1000000	760	**1120.00**	**1120.00**
850	*1500000	1390	**2275.00**	**2275.00**
1050	*2000000	2450	**3462.50**	**3462.50**

†3/16 size not listed by underwriters. Made square end only.
*Circular mils.

Cap. Amp.	Approximate Dimensions, Inches A	B	C	D	E	F	G	H
†25	3/16	.1368	9/64	3/8	15/32	15/16	7/32	17/64
35	1/4	.186	3/16	3/8	1/2	1 1/32	7/32	3/8
50	5/16	.232	3/16	3/8	19/32	1 7/32	1/4	7/16
70	3/8	.285	9/32	7/16	11/16	1 11/32	9/32	17/32
90	7/16	.336	9/32	1/2	3/4	1 1/2	11/32	5/8
125	1/2	.398	11/32	5/8	13/16	1 3/4	13/32	3/4
150	9/16	.461	13/32	11/16	15/16	2	7/16	13/16
175	5/8	.511	13/32	25/32	1	2 1/8	1/2	29/32
225	11/16	.559	13/32	27/32	1 5/32	2 9/32	17/32	31/32
237	13/16	.651	13/32	31/32	1 1/4	2 5/8	5/8	1 3/16
325	15/16	.776	13/32	1 3/16	1 5/8	3 3/8	3/4	1 13/32
362	1	.82	13/32	1 1/4	1 3/4	3 7/16	13/16	1 1/2
400	1 1/16	.88	13/32	1 1/2	2 1/8	4 1/16	15/16	1 9/16
450	1 1/8	.943	13/32	1 5/8	2 1/4	4 7/16	1	1 11/16
550	1 5/16	1.084	17/32	2	2 1/2	5	1 1/8	1 15/16
650	1 7/16	1.21	29/32	2	2 1/2	5 3/8	1 3/16	2 1/8
850	1 3/4	1.46	1 1/32	2 3/8	3 1/8	6 5/8	1 7/16	2 5/8
1050	2 1/16	1.66	1 1/32	2 5/8	3 5/8	7 1/2	1 5/8	3 1/16



CENTER FORMED

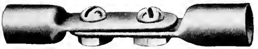
Same prices, conditions and dimensions as regular Lugs, except dimension "D," which runs a little larger. Lugs are absolutely seamless all around. Round end lugs in small sizes are recommended, wherever possible.

Sizes ¼ to 13/16 inch furnished round end, unless otherwise specified. Sizes 13/16 inch and larger furnished square end, unless otherwise specified.

Stud Hole—Size or position of stud hole may be changed or lugs furnished without stud holes at no additional charge. Any variation should be carefully specified.

Tinnings—Lugs tinned inside of tubular portion will be furnished at extra charge depending on size.

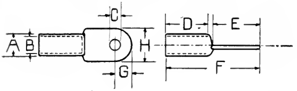
SHERMAN CONNECTORS



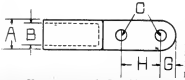
U. S. Pat. No. 1277765

Mfrs. Size A	Maximum Stranded Wire B.&S Gauge	Approx. Wt.Lb. Per 1000	Price Per 1000 Pieces	Bolts & Nuts Per 1000 Plain	Coppered
¼	8	9	**$61.25**	**$17.00**	**$21.50**
⅜	4	25	**84.50**	**17.00**	**21.50**
½	0	52	**131.25**	**17.00**	**21.50**
⅝	000	85	**230.50**	**21.75**	**28.50**
13/16	250,000 CM	228	**438.75**	**21.75**	**28.50**
15/16	400,000 CM	250	**762.50**	**31.50**	**40.50**
1	450,000 CM	310	**907.50**	**31.50**	**40.50**
1 1/16	500,000 CM	325	**1102.50**	**50.25**	**59.15**
1 5/16	800,000 CM	350	**1642.50**	**171.00**	**176.00**
1¾	1,500,000 CM	625	**3230.00**	**171.00**	**176.00**
2 1/16	2,000,000 CM	1350	**5565.00**	**301.50**	**324.00**

Dimensions of Above Connectors



For ¼ In. Size



For ⅜ to 2 1/16 In. Size

¼ inch size has one stud hole requiring one bolt and nut only. Larger sizes, two stud holes requiring two bolts and nuts for each complete connector.

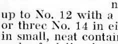
Mfrs. Size A	Maximum Stranded Wire B.&S.Gauge	Approximate Dimens. in Inches B	C	D	E	F	G	H
¼	8	.186	11/64	3/8	19/32	1 1/32	9/32	3/8
⅜	4	.285	11/64	9/16	29/32	1 5/8	7/32	3/8
½	0	.398	11/64	3/4	1 1/4	2 3/16	9/32	5/8
⅝	000	.511	17/64	13/16	1 11/16	2 11/16	3/8	7/8
13/16	250,000 CM	.651	17/64	1 1/4	2 1/16	3 5/8	7/16	1 1/8
15/16	400,000 CM	.776	11/32	1 1/2	2 5/16	4	1/2	1 1/4
1	450,000 CM	.82	11/32	1 1/2	2 7/16	4 3/16	1/2	1 1/4
1 1/16	500,000 CM	.88	13/32	1 3/4	2 9/16	4 1/2	5/8	1 1/4
1 5/16	800,000 CM	1.084	17/32	2	2 11/16	5	5/8	1 3/8
1¾	1,500,000 CM	1.46	17/32	2 3/8	3 3/8	6 3/8	3/4	1 3/4
2 1/16	2,000,000 CM	1.66	21/32	2 5/8	3 3/8	6 3/4	3/4	1 3/4

SHERMAN FIXTURE CONNECTORS

U. S. Pat. No. 1352032

SOLDERLESS CONNECTORS

For All Wire No. 12 or Smaller



The use of the Sherman fixture connector is the most approved and efficient method of making small electrical connections. Will connect all wires up to No. 12 with a maximum of two No. 12 solid or three No. 14 in either end. Attractively packed in small, neat containers, insuring neat shelf stock and safe deliveries.

Carton, 100 each. Standard package, 500 (5 cartons). Weight of standard package, 12 pounds. Price quoted on application.

FUSE PLUGS AND FUSE CASES

EDISON REGULAR FUSE PLUG

Mfrs. No.	Amp.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
903	3	50	500	38	**$0.07**
906	6	50	500	38	**.07**
910	10	50	500	38	**.07**
912	12	50	500	38	**.07**
915	15	50	500	38	**.07**
920	20	50	500	38	**.07**
925	25	50	500	38	**.07**
930	30	50	500	38	**.07**

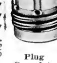
H & H STANDARD—REFILLABLE

Schedule I—N.E.C. Standard

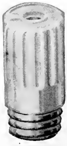
125 Volt Capacity

Mfrs. No.	Amp.	Carton	Price Each Refills	Price Each Plugs
66327	3	50	**$0.04**	**$0.07**
66329	6	50	**.04**	**.07**
66331	10	50	**.04**	**.07**
66333	12	50	**.04**	**.07**
66335	15	50	**.04**	**.07**
66337	20	50	**.04**	**.07**
66339	25	50	**.04**	**.07**
66341	30	50	**.04**	**.07**

Standard package, 500; weight standard package, 45 pounds.



Plug Complete



PLUG FUSE CASINGS

(For Use with N. E. Code Fuses)

Mfrs. No.		Std. Pkg.	Price Each
2598	For 3-30 Amp. N. E. Code Fuse.........	100	**$0.18**
2599	For 31-60 Amp. N. E. Code Fuse..	100	**.36**

ECONOMY CLEARSITE PLUG FUSES

Non-Renewable

Fuses of assorted amperages may be obtained at quantity prices provided each capacity is ordered in carton quantity or multiples.

50 Fuses Per Carton			**4 Per Retail Package**		
Mfrs. No.	Carton Quantity	Amp.	Mfrs. No.	*Carton Quantity	Amp.
4303	50	3	**5703**	100	3
4306	50	6	**5706**	100	6
4310	50	10	**5710**	100	10
4312	50	12	**5712**	100	12
4315	50	15	**5715**	100	15
4320	50	20	**5720**	100	20
4325	50	25	**5725**	100	25
4330	50	30	**5730**	100	30

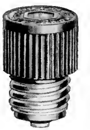
*25 Retail Packages of 4 Fuses Each.

Price Each **$0.07**

ECONOMY RENEWABLE PLUG FUSES

N. E. Code Standard

3-30 AMPERES—125 VOLTS



Mfrs. No.	Capacity Amperes	Price Each
PF- 368	3	**$0.50**
PF- 468	4	**.50**
PF- 568	5	**.50**
PF- 668	6	**.50**
PF- 868	8	**.50**
PF-1068	10	**.50**
PF-1268	12	**.50**
PF-1568	15	**.50**
PF-2068	20	**.50**
PF-2568	25	**.50**
PF-3068	30	**.50**

Carton Quantity 10. Standard Package 100. Maximum Std. Pkg. Wt., 14 Lbs.

PLUG TYPE RENEWAL LINKS

Mfrs. No.	Capacity Amperes	Std. Pkg.	Price Each
PR-6803	3	100	**$0.02**
PR-6804	4	100	**.02**
PR-6805	5	100	**.02**
PR-6806	6	100	**.02**
PR-6808	8	100	**.02**
PR-6810	10	100	**.02**
PR-6812	12	100	**.02**
PR-6815	15	100	**.02**
PR-6820	20	100	**.02**
PR-6825	25	100	**.02**
PR-6830	30	100	**.02**

Maximum Standard Package Wt. 2 ounces.

INSTRUMENT PROTECTIVE FUSES

Small glass tube fuses with brass caps for rosettes and attachment plugs, and for the protection of instruments and pilot lights on switchboards. For service on circuits not over 250 volts.

Mfrs. No.	Amp.	Length In.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
5271	1	1½	100	100	1¼	**$0.10**
5272	2	1½	100	100	1¼	**.10**
5273	3	1½	100	100	1¼	**.10**

Dimensions: Cap to cap, 1⅛ in.; between caps, ¾ in.; diameter of tube, ⅜ in.; width of clips, ⅜ in.; diameter of cap, 13/32 in.

WESTINGHOUSE FUSE WIRE AND FUSE RIBBON

ALUMINUM WIRE

B.& S. Gauge	Diam. Inches	Continuous Carrying Capacity Amperes	Approx. No. of Feet Per Lb.	Net Wt. Lb. Std. Pkg. (Spools)	Price Per Lb.
11	.0907	81	135	1	**$1.75**
12	.0908	72	165	1	**1.75**
13	.0720	63	208	1	**1.80**
14	.0641	54	264	1	**1.85**
15	.0571	47	332	1	**1.95**
16	.0508	40	420	1	**2.15**
17	.0453	35	528	1	**2.30**
18	.0403	30	688	1	**2.45**
19	.0359	26	835	1	**2.65**
20	.0320	22	1050	1	**2.90**
21	.0285	18	1350	1	**3.20**
22	.0254	15	1680	1	**3.70**
23	.0226	12	2150	1	**4.20**
24	.0201	10	2670	1½	**5.00**

NICKEL SILVER WIRE (18 Per Cent)

B.& S. Gauge	Continuous Carrying Cap. Amp.	Approx. No. Ft. Per Lb.	Net Wt. Lb. Std. Pkg. (Spools)	Price Per Lb.
26	3.75	1300	½	**$1.80**
30	1.13	3288	½	**2.00**
36	0.50	13217	¼	**3.40**

UNION TESTED FUSE STRIP

FROM 50 TO 600 AMPERES

Furnished in ⅝ inch and 1 inch strips. The ⅝ inch strip has carrying capacity of from 50 to 90 amp., 1 inch strip, 90 to 600.

Cap. Amp.	Thick. In.	Wt.Oz. Per Ft.	Price Per Lb.	Cap. Amp.	Thick. In.	Wt.Oz. Per Ft.	Price Per Lb.
50	.020	1	**$1.50**	200	.060	4½	**$1.50**
60	.025	1⅛	**1.50**	225	.068	5⅛	**1.50**
70	.030	1⅜	**1.50**	250	.076	5¾	**1.50**
75	.032	1½	**1.50**	275	.085	6⅜	**1.50**
80	.035	1⅝	**1.50**	300	.093	7	**1.50**
90	.043	2	**1.50**	350	.110	8¼	**1.50**
100	.028	2⅛	**1.50**	400	.128	9⅝	**1.50**
125	.036	2¾	**1.50**	450	.148	11⅛	**1.50**
150	.044	3⅜	**1.50**	500	.171	12⅜	**1.50**
175	.052	3⅞	**1.50**	600	.212	16	**1.50**

UNION TESTED FUSE WIRE

All fuse wire is carefully wound on spools having heavy flanges which protect the soft fusible metal from abrasion or other mechanical injury.

Capacity Amperes	Diameter Inches	Lgth. in Feet Per Pound	Price Per Pound
¼	.0045	12920	**$100.00**
½	.010	2616	**10.00**
1	.016	1021	**4.00**
2	.025	419	**3.50**
3	.031	273	**3.00**
5	.039	172	**2.25**
6	.042	148	**2.25**
10	.055	87	**2.00**
15	.068	57	**2.00**
20	.082	39	**1.50**
25	.094	29¾	**1.50**
30	.103	24¾	**1.50**
40	.122	17½	**1.50**
50	.137	14	**1.50**
60	.158	10½	**1.50**
70	.170	9	**1.50**
75	.182	8	**1.50**
80	.189	7¼	**1.50**
90	.212	5¾	**1.50**
100	.226	5	**1.50**

Prices on Special Drawn Fuse Wire quoted on application.

WESTINGHOUSE ENCLOSED CARTRIDGE FUSES

N. E. Code Standard

NON-INDICATING—NON-RENEWABLE

FOR 250 VOLT SERVICE

Ferrule Contacts

Mfrs. No.	Amps.	Carton	Std. Pkg.	Wt Lb. Std.Pkg.	Price Each	Price Refilling
W-375838	4	10	100	4	**$0.15**	....
W-375696	5	10	100	4	**.15**	....
W-375799	6	10	100	4	**.15**	....
W-375697	10	10	100	4	**.15**	....
W-375698	15	10	100	4	**.15**	....
W-375699	20	10	100	4	**.15**	....
W-375700	25	10	100	4	**.15**	....
W-375701	30	10	100	4	**.15**	....
W-375702	35	10	100	10¼	**.30**	....
W-375703	40	10	100	10¼	**.30**	....
W-375704	50	10	100	10¼	**.30**	....
W-375705	60	10	100	10¼	**.30**	....

Knife Blade Contacts

Mfrs. No.	Amps.	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each	Price Refilling
W-375706	70	5	50	15	**$0.90**	**$0.60**
W-375800	75	5	50	15	**.90**	**.60**
W-375707	80	5	50	15	**.90**	**.60**
W-375708	90	5	50	15	**.90**	**.60**
W-375709	100	5	50	15	**.90**	**.60**
W-375710	110	5	25	19¾	**2.00**	**.90**
W-375711	125	5	25	19¾	**2.00**	**.90**
W-375712	150	5	25	19¾	**2.00**	**.90**
W-375713	175	5	25	19¾	**2.00**	**.90**
W-375714	200	5	25	19¾	**2.00**	**.90**

FOR 600 VOLT SERVICE

Ferrule Contacts

W-375715	5	10	100	14	**.40**	....
W-375802	6	10	100	14	**.40**	....
W-375716	10	10	100	14	**.40**	....
W-375717	15	10	100	14	**.40**	....
W-375718	20	10	100	14	**.40**	....
W-375719	25	10	100	14	**.40**	....
W-375720	30	10	100	14	**.40**	....
W-375721	35	10	100	25¾	**.60**	....
W-375722	40	10	100	25¾	**.60**	....
W-375723	50	10	100	25¾	**.60**	....
W-375724	60	10	100	25¾	**.60**	....

Knife Blade Contacts

W-375725	70	5	50	28½	**1.50**	**$0.80**
W-375803	75	5	50	28½	**1.50**	**.80**
W-375726	80	5	50	28½	**1.50**	**.80**
W-375727	90	5	50	28½	**1.50**	**.80**
W-375728	100	5	50	28½	**1.50**	**.80**
W-375729	110	5	25	32¾	**2.50**	**1.20**
W-375730	125	5	25	32¾	**2.50**	**1.20**
W-375731	150	5	25	32¾	**2.50**	**1.20**
W-375732	175	5	25	32¾	**2.50**	**1.20**
W-375733	200	5	25	32¾	**2.50**	**1.20**

NOARK NON-INDICATING FUSES

National Electrical Code Standard

For Potentials Not Exceeding 250 Volts

Mfrs. No.	Amps.	Carton Qty.	Std. Pkg. Qty.	Std. Pkg. Wght. Lbs.	Price Each	Refilling Price Each
25005	5	10	100	4	$0.15	....
25006	6	10	100	4	.15	....
25010	10	10	100	4	.15	....
25015	15	10	100	4	.15	....
25020	20	10	100	4	.15	....
25025	25	10	100	4	.15	....
25030	30	10	100	4	.15	....
25035	35	10	100	10¼	.30	....
25040	40	10	100	10¼	.30	....
25050	50	10	100	10¼	.30	....
25060	60	10	100	10¼	.30	....

25070	70	5	50	15	.90	$0.60
25075	75	5	50	15	.90	.60
25080	80	5	50	15	.90	.60
25090	90	5	50	15	.90	.60
250100	100	5	50	15	.90	.60
250110	110	5	25	19¾	2.00	.90
250125	125	5	25	19¾	2.00	.90
250150	150	5	25	19¾	2.00	.90
250175	175	5	25	19¾	2.00	.90
250200	200	5	25	19¾	2.00	.90
250225	225	1	25	43½	3.60	1.50
250250	250	1	25	43½	3.60	1.50
250275	275	1	25	43½	3.60	1.50
250300	300	1	25	43½	3.60	1.50
250325	325	1	25	43½	3.60	1.50
250350	350	1	25	43½	3.60	1.50
250375	375	1	25	43½	3.60	1.50
250400	400	1	25	43½	3.60	1.50
250450	450	1	10	31	5.50	2.00
250500	500	1	10	31	5.50	2.00
250550	550	1	10	31	5.50	2.00
250600	600	1	10	31	5.50	2.00

For Potentials Not Exceeding 600 Volts

60005	5	10	100	14	.40	....
60010	10	10	100	14	.40	....
60015	15	10	100	14	.40	....
60020	20	10	100	14	.40	....
60025	25	10	100	14	.40	....
60030	30	10	100	14	.40	....
60035	35	10	100	25¾	.60	....
60040	40	10	100	25¾	.60	....
60050	50	10	100	25¾	.60	....
60060	60	10	100	25¾	.60	....

Different capacity Fuses in one size cartridge, of the same type, may be combined to make Standard Package quantities, when such fuses are ordered in Carton quantities.

NOARK NON-INDICATING FUSES

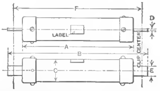
National Electrical Code Standard
For Potentials Not Exceeding 600 Volts

Mfrs. No.	Amps.	Carton Qty.	Std. Pkg. Qty.	Std. Pkg. Wght. Lbs.	Price Each	Refilling Price Each
60070	70	5	50	28½	1.50	.80
60080	80	5	50	28½	1.50	.80
60090	90	5	50	28½	1.50	.80
600100	100	5	50	28½	1.50	.80
600110	110	5	25	32¾	2.50	1.20
600125	125	5	25	32¾	2.50	1.20
600150	150	5	25	32¾	2.50	1.20
600175	175	5	25	32¾	2.50	1.20
600200	200	5	25	32¾	2.50	1.20
600225	225	1	25	78¾	5.50	2.00
600250	250	1	25	78¾	5.50	2.00
600275	275	1	25	78¾	5.50	2.00
600300	300	1	25	78¾	5.50	2.00
600325	325	1	25	78¾	5.50	2.00
600350	350	1	25	78¾	5.50	2.00
600375	375	1	25	78¾	5.50	2.00
600400	400	1	25	78¾	5.50	2.00
600450	450	1	10	47¼	8.00	3.00
600500	500	1	10	47¼	8.00	3.00
600550	550	1	10	47¼	8.00	3.00
600600	600	1	10	47¼	8.00	3.00

NOARK ENCLOSED FUSES

Type E—2500 Volts

6450	½	2	25	16½	$1.75	$1.25
6451	1	2	25	16½	1.75	1.25
6452	2	2	25	16½	1.75	1.25
6453	3	2	25	16½	1.75	1.25
6454	4	2	25	16½	1.75	1.25
6455	5	2	25	16½	1.75	1.25
6456	6	2	25	16½	1.75	1.25
6457	8	2	25	16½	1.75	1.25
6458	10	2	25	16½	1.75	1.25
6459	12	2	25	16½	1.75	1.25
6460	15	2	25	16½	1.75	1.25
6461	16	2	25	16½	1.75	1.25
6462	18	2	25	16½	1.75	1.25
6463	20	2	25	16½	2.60	2.00
6464	25	2	25	16½	2.60	2.00
6465	30	2	25	16½	2.60	2.00
6466	35	2	25	32	3.00	2.20
6467	40	2	25	32	3.00	2.20
6468	45	2	25	32	3.00	2.20
6469	50	2	25	32	3.00	2.20
6470	55	2	25	32	3.00	2.20
6471	60	2	25	32	3.00	2.20
6472	70	2	25	40	3.40	2.40
6473	75	2	25	40	3.40	2.40
6474	80	2	25	40	3.40	2.40
6475	90	2	25	40	3.40	2.40
6476	100	2	25	40	3.40	2.40



Mfrs. No.	A.	B.	C.	D.	E.	F
6450-6465	8-11/16″	10-⅞″	1-¼″	⅛″	¾″	10″
6466-6471	8-11/16″	10-⅞″	1-¾″	⅛″	¾″	10″
6472-6476	8-11/16″	10-⅞″	2″	⅛″	¾″	10″

WESTINGHOUSE ENCLOSED CARTRIDGE FUSES

N. E. Code Standard

RENEWABLE FUSE—250 VOLTS
FERRULE CONTACTS

3-30 Amperes

Mfrs. No.	Amps.	Lgth. In.	Diam. In. Ferrule	Diam. In. Tube	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
292807	3	2	7/16	1/2	10	100	5	**$0.50**
292808	4	2	7/16	1/2	10	100	5	**.50**
292809	5	2	7/16	1/2	10	100	5	**.50**
292810	6	2	7/16	1/2	10	100	5	**.50**
292811	8	2	7/16	1/2	10	100	5	**.50**
292812	10	2	7/16	1/2	10	100	5	**.50**
292813	12	2	7/16	1/2	10	100	5	**.50**
292814	15	2	7/16	1/2	10	100	5	**.50**
292815	20	2	7/16	1/2	10	100	5	**.50**
292816	25	2	7/16	1/2	10	100	5	**.50**
292817	30	2	7/16	1/2	10	100	5	**.50**

31-60 Amperes

292818	35	3	13/16	3/4	10	100	15	**1.00**
292819	40	3	13/16	3/4	10	100	15	**1.00**
292820	45	3	13/16	3/4	10	100	15	**1.00**
292821	50	3	13/16	3/4	10	100	15	**1.00**
292822	55	3	13/16	3/4	10	100	15	**1.00**
292823	60	3	13/16	3/4	10	100	15	**1.00**

KNIFE BLADE CONTACTS

65-100 Amperes

Mfrs No.	Amps.	Lgth. In.	Blade, In. Width	Blade, In. Thick.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
292841	65	5 7/8	3/4	1/8	5	50	5	**$2.00**
292842	70	5 7/8	3/4	1/8	5	50	5	**2.00**
292843	75	5 7/8	3/4	1/8	5	50	5	**2.00**
292844	80	5 7/8	3/4	1/8	5	50	5	**2.00**
292845	85	5 7/8	3/4	1/8	5	50	5	**2.00**
292846	90	5 7/8	3/4	1/8	5	50	5	**2.00**
292847	95	5 7/8	3/4	1/8	5	50	5	**2.00**
292848	100	5 7/8	3/4	1/8	5	50	5	**2.00**

110-200 Amperes

292849	110	7 1/8	1 3/8	3/8	1	25	1	**4.00**
292850	120	7 1/8	1 3/8	3/8	1	25	1	**4.00**
292851	125	7 1/8	1 3/8	3/8	1	25	1	**4.00**
292852	150	7 1/8	1 3/8	3/8	1	25	1	**4.00**
292853	175	7 1/8	1 3/8	3/8	1	25	1	**4.00**
292854	200	7 1/8	1 3/8	3/8	1	25	1	**4.00**

225-400 Amperes

292855	225	8 3/8	1 5/8	1/4	1	25	1	**7.50**
292856	250	8 3/8	1 5/8	1/4	1	25	1	**7.50**
292857	275	8 3/8	1 5/8	1/4	1	25	1	**7.50**
292858	300	8 3/8	1 5/8	1/4	1	25	1	**7.50**
292859	325	8 3/8	1 5/8	1/4	1	25	1	**7.50**
292860	350	8 3/8	1 5/8	1/4	1	25	1	**7.50**
292861	375	8 3/8	1 5/8	1/4	1	25	1	**7.50**
292862	400	8 3/8	1 5/8	1/4	1	25	1	**7.50**

450-600 Amperes

292863	450	10 3/8	2	1/4	1	10	1	**11.00**
292864	500	10 3/8	2	1/4	1	10	1	**11.00**
292865	550	10 3/8	2	1/4	1	10	1	**11.00**
292866	600	10 3/8	2	1/4	1	10	1	**11.00**

WESTINGHOUSE ENCLOSED CARTRIDGE FUSES

N. E. Code Standard

RENEWABLE LINKS—250 VOLTS
FERRULE CONTACTS

3-30 Amperes

Mfrs. No.	Amps.	Std. Pkg.	Net*Wt. Oz. Std. Pkg.	Price Each
292824	3	100	3	**$0.03**
292825	4	100	3	**.03**
292826	5	100	3	**.03**
292827	6	100	3	**.03**
292828	8	100	3	**.03**
292829	10	100	3	**.03**
292830	12	100	3	**.03**
292831	15	100	3	**.03**
292832	20	100	3	**.03**
292833	25	100	3	**.03**
292834	30	100	3	**.03**

35-60 Amperes

292835	35	100	10	**.05**
292836	40	100	10	**.05**
292837	45	100	10	**.05**
292838	50	100	10	**.05**
292839	55	100	10	**.05**
292840	60	100	10	**.05**

KNIFE BLADE CONTACTS

65-100 Amperes

Mfrs. No.	Amps.	Std. Pkg.	Net*Wt. Oz. Std. Pkg.	Price Each
292867	65	50	6	**$0.10**
292868	70	50	6	**.10**
292869	75	50	6	**.10**
292870	80	50	6	**.10**
292871	85	50	6	**.10**
292872	90	50	6	**.10**
292873	95	50	6	**.10**
292874	100	50	6	**.10**

110-200 Amperes

292875	110	25	7	**.15**
292876	120	25	7	**.15**
292877	125	25	7	**.15**
292878	150	25	7	**.15**
292879	175	25	7	**.15**
292880	200	25	7	**.15**

225-400 Amperes

292881	225	25	14	**.30**
292882	250	25	14	**.30**
292883	275	25	14	**.30**
292884	300	25	14	**.30**
292885	325	25	14	**.30**
292886	350	25	14	**.30**
292887	375	25	14	**.30**
292888	400	25	14	**.30**

450-600 Amperes

292889	450	10	11	**.60**
292890	500	10	11	**.60**
292891	550	10	11	**.60**
292892	600	10	11	**.60**

*Links are packed in standard package quantities only.

WESTINGHOUSE ENCLOSED CARTRIDGE FUSES

N. E. Code Standard

RENEWABLE FUSE—600 VOLTS FERRULE CONTACTS

3-30 Amperes

Mfrs. No.	Amps.	Lgth. In.	—Diam. In.— Ferrule	Tube	Carton	Std. Pkg.	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
292893	3	5	13/32	3/4	10	100	20		$1.10
292894	4	5	13/32	3/4	10	100	20		1.10
292895	5	5	13/32	3/4	10	100	20		1.10
292896	6	5	13/32	3/4	10	100	20		1.10
292897	8	5	13/32	3/4	10	100	20		1.10
292898	10	5	13/32	3/4	10	100	20		1.10
292899	12	5	13/32	3/4	10	100	20		1.10
292900	15	5	13/32	3/4	10	100	20		1.10
292901	20	5	13/32	3/4	10	100	20		1.10
292902	25	5	13/32	3/4	10	100	20		1.10
292903	30	5	13/32	3/4	10	100	20		1.10
				35-60 Amperes					
292904	35	5½	1 1/16	1	10	100	40		1.25
292905	40	5½	1 1/16	1	10	100	40		1.25
292906	45	5½	1 1/16	1	10	100	40		1.25
292907	50	5½	1 1/16	1	10	100	40		1.25
292908	55	5½	1 1/16	1	10	100	40		1.25
292909	60	5½	1 1/16	1	10	100	40		1.25

KNIFE BLADE CONTACTS

65-100 Amperes

Mfrs. No.	Amps.	Lgth. —Blade,In.— In.	Width.	Thck.	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
292927	65	7 7/8	3/4	1/8	5	50	36	$3.00
292928	70	7 7/8	3/4	1/8	5	50	36	3.00
292929	75	7 7/8	3/4	1/8	5	50	36	3.00
292930	80	7 7/8	3/4	1/8	5	50	36	3.00
292931	85	7 7/8	3/4	1/8	5	50	36	3.00
292932	90	7 7/8	3/4	1/8	5	50	36	3.00
292933	95	7 7/8	3/4	1/8	5	50	36	3.00
292934	100	7 7/8	3/4	1/8	5	50	36	3.00
			110-200 Amperes					
292935	110	9 5/8	1 1/8	3/8	1	25	41	5.00
292936	120	9 5/8	1 1/8	3/8	1	25	41	5.00
292937	125	9 5/8	1 1/8	3/8	1	25	41	5.00
292938	150	9 5/8	1 1/8	3/8	1	25	41	5.00
292939	175	9 5/8	1 1/8	3/8	1	25	41	5.00
292940	200	9 5/8	1 1/8	3/8	1	25	41	5.00
			225-400 Amperes					
292941	225	11 5/8	1 5/8	1/4	1	25	86	11.00
292942	250	11 5/8	1 5/8	1/4	1	25	86	11.00
292943	275	11 5/8	1 5/8	1/4	1	25	86	11.00
292944	300	11 5/8	1 5/8	1/4	1	25	86	11.00
292945	325	11 5/8	1 5/8	1/4	1	25	86	11.00
292946	350	11 5/8	1 5/8	1/4	1	25	86	11.00
292947	375	11 5/8	1 5/8	1/4	1	25	86	11.00
292948	400	11 5/8	1 5/8	1/4	1	25	86	11.00
			450-600 Amperes					
292949	450	13 3/8	2	1/4	1	10	56	16.00
292950	500	13 3/8	2	1/4	1	10	56	16.00
292951	550	13 3/8	2	1/4	1	10	56	16.00
292952	600	13 3/8	2	1/4	1	10	56	16.00

WESTINGHOUSE ENCLOSED CARTRIDGE FUSES

N. E. Code Standard

RENEWABLE LINKS—600 VOLTS FERRULE CONTACTS

3-30 Amperes

Mfrs. No.	Amps.	Std. Pkg.	Net*Wt.Oz. Std.Pkg.	Price Each
292910	3	100	9	$0.05
292911	4	100	9	.05
292912	5	100	9	.05
292913	6	100	9	.05
292914	8	100	9	.05
292915	10	100	9	.05
292916	12	100	9	.05
292917	15	100	9	.05
292918	20	100	9	.05
292919	25	100	9	.05
292920	30	100	9	.05
		35-60 Amperes		
292921	35	100	25	.06
292922	40	100	25	.06
292923	45	100	25	.06
292924	50	100	25	.06
292925	55	100	25	.06
292926	60	100	25	.06

KNIFE BLADE CONTACTS

65-100 Amperes

Mfrs. No.	Amps.	Std. Pkg.	Net*Wt.Oz. Std.Pkg.	Price Each
292953	65	50	10	$0.10
292954	70	50	10	.10
292955	75	50	10	.10
292956	80	50	10	.10
292957	85	50	10	.10
292958	90	50	10	.10
292959	95	50	10	.10
292960	100	50	10	.10
		110-200 Amperes		
292961	110	25	12	.15
292962	120	25	12	.15
292963	125	25	12	.15
292964	150	25	12	.15
292965	175	25	12	.15
292966	200	25	12	.15
		225-400 Amperes		
292967	225	25	24	.30
292968	250	25	24	.30
292969	275	25	24	.30
292970	300	25	24	.30
292971	325	25	24	.30
292972	350	25	24	.30
292973	375	25	24	.30
292974	400	25	24	.30
		450-600 Amperes		
292975	450	10	20	.60
292976	500	10	20	.60
292977	550	10	20	.60
292978	600	10	20	.60

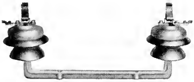
*Links are packed in standard package quantity only.

WESTINGHOUSE HIGH-TENSION FUSES

ENCLOSED CARTRIDGE TYPE

Non-Renewable for Indoor Service

With Indicators*



Base for Voltages 2500 Up to 25,000

The casing for these fuses is made from strong fibre tubing treated to prevent warping due to absorption of moisture.

FUSES

Standard Package, 10; Carton, 2

Mfrs. No	Amp. Cap.	Net Wt. Carton†	Price Each	Mfrs. No	Amp. Cap.	Net Wt. Carton†	Price Each
			For Voltages Up to 2500				
318417	1	¼	**$1.75**	**318430**	25	¼	**$2.60**
318418	2	¼	**1.75**	**318431**	30	¼	**2.60**
318419	3	¼	**1.75**	**318432**	35	¼	**3.00**
318420	4	¼	**1.75**	**318433**	40	¼	**3.00**
318421	5	¼	**1.75**	**318434**	45	¼	**3.00**
318422	6	¼	**1.75**	**318435**	50	¼	**3.00**
318423	8	¼	**1.75**	**318436**	55	¼	**3.00**
318424	10	¼	**1.75**	**318437**	60	¼	**3.00**
318425	12	¼	**1.75**	**318438**	70	¼	**3.40**
318426	15	¼	**1.75**	**318439**	80	¼	**3.40**
318427	16	¼	**1.75**	**318440**	90	¼	**3.40**
318428	18	¼	**1.75**	**318441**	100	¼	**3.40**
318429	20	¼	**2.60**	....	....	....	....
			For Voltages Up to 4500				
318442	1	½	**3.50**	**318450**	9	½	**3.50**
318443	2	½	**3.50**	**318451**	10	½	**3.50**
318444	3	½	**3.50**	**318452**	12	½	**3.50**
318445	4	½	**3.50**	**318453**	14	½	**3.50**
318446	5	½	**3.50**	**318454**	16	½	**3.50**
318447	6	½	**3.50**	**318455**	18	½	**3.50**
318448	7	½	**3.50**	**318456**	20	½	**3.50**
318449	8	½	**3.50**	....	....	....	....
			For Voltages Up to 7500				
318457	1	1	**4.00**	**318463**	7	1	**4.00**
318458	2	1	**4.00**	**318464**	8	1	**4.00**
318459	3	1	**4.00**	**318465**	9	1	**4.00**
318460	4	1	**4.00**	**318466**	10	1	**4.00**
318461	5	1	**4.00**	**318467**	12	1	**4.00**
318462	6	1	**4.00**	**318468**	15	1	**4.00**
			For Voltages Up to 15,000				
318469	1	1	**4.50**	**318474**	6	1	**4.50**
318470	2	1	**4.50**	**318475**	7	1	**4.50**
318471	3	1	**4.50**	**318476**	8	1	**4.50**
318472	4	1	**4.50**	**318477**	9	1	**4.50**
318473	5	1	**4.50**	**318478**	10	1	**4.50**
			For Voltages Up to 25,000*				
318479	1	1½	**5.00**	**318482**	4	1½	**5.00**
318480	2	1½	**5.00**	**318483**	5	1½	**5.00**
318481	3	1½	**5.00**	....	..	....	....

*Fuses of from 1 to 4 amperes capacity do not have indicators. The 5 ampere, 25,000 volt fuse does not have an indicator. †For shipping weight add 10 per cent to net weight.

Dimensions of Fuses

Volts	Amps.	Lgth. In.	Diam. In.	Blade, In. Lgth.	Wdth.	Thck.
2500	0– 30	11	1½	1 5/32	¾	⅛
2500	31– 60	11	1¾	1 5/32	¾	⅛
2500	61–100	11	2	1 5/32	¾	⅛
4500	0– 20	14	2	1 5/32	¾	⅛
7500	0– 15	17	2	1 5/32	¾	⅛
15000	0– 10	20	2	1 5/32	¾	⅛
25000	0– 5	23	2	1 5/32	¾	⅛

BASES

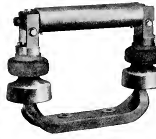
Mfrs. No.	Volts	Net Weight	Price Each
364330	2500	4	**$3.15**
364331	4500	15	**9.25**
364332	7500	35	**11.50**
364333	15000	40	**14.50**
364334	25000	60	**18.00**

WESTINGHOUSE EXPULSION TYPE FUSE BLOCKS

FRONT-CONNECTED

For Capacities Up to 100 Amperes

For Voltages 2500 to 25,000



7500 Volt Size

Made especially for opening the circuit in the event of sudden and severe overloads or short-circuits, but they are also entirely suitable for the protection of circuits in the case of gradually increasing overloads if the fuse wire is inserted in asbestos sleeving. They are for indoor mounting only. The distinctive features are: Cast iron yoke; petticoat type insulators; double tube, insuring rigidity of contacts; knife blade jaws; light weight with substantial construction; readiness of installation and of refusing.

The fuse tube consists of two micarta tubes, one within the other. The ends of the outer tube are fitted with brass clips, that make contact with the copper jaws which support the tube. On the 2500 volt block these jaws are mounted on studs. This block should be mounted on a marble panel. On the blocks for other voltages the jaws are mounted on porcelain insulators supported on a cast iron yoke or base. Two holes are provided in the base for mounting screws.

Number and price include fuse block complete including the fuse tube, ready for mounting. Fuse wire and asbestos sleeving are not included and must be ordered separately. Aluminum or nickel silver fuse wire should be used.

FUSE BLOCKS

Mfrs. No	Amperes	Max. Voltage	Length of Fuse Wire Required Per Block, In.	Wt. Lb. Boxed	Price Each
		Switchboard Mounting			
124414	Up to 100	2500	11	9	**$28.00**
		Wall Mounting			
124401	Up to 100	7500	14	14½	**37.00**
124402	Up to 100	15000	19	26½	**44.00**
124413	Up to 100	25000	28	31	**51.00**

FUSE TUBES

185312	....	2500	...	4½	**14.00**
185313	....	7500	....	6½	**17.00**
185314	....	15000	....	10	**19.00**
185315	....	25000	....	13½	**21.00**

FUSE TONGS

365032	For Use With All Fuses	**12.00**

WESTINGHOUSE DISTRIBUTION TRANSFORMER FUSE BLOCKS

Single Pole—Outdoor Mounting

No. 147190

PLUG TYPE

These fuse blocks are designed for use on circuits not exceeding 30 amperes and 5000 volts and of moderate capacity. Two forms are supplied, one for 2500 volts maximum, and the other for 5000 volts maximum. With the exception of the contact clips and mounting screws, all parts are of porcelain. They are entirely weatherproof and are readily mounted on a cross arm or on any location convenient to the transformer by screws placed through the holes in the side of the block in the case of the 2500 volt block, or by a mounting strap around the block in the case of the 5000 volt block.

The block consists of two pieces; a receptacle, to which the line connections are made and which is permanently fastened to the cross arm or other support, and a plug, which carries the fuse. To refuse it is necessary to remove the plug from the receptacle, thus making the block safe in operation.

The interrupting capacity of these fuse blocks, when used one per wire, is approximately 800 amperes at 2500 volts. In the 2500 volt size two blocks are listed; one non-indicating and one indicating and in the 5000 volt size, one block, non-indicating is listed.

No. 147190 has a glazed exterior finish of a dark brown color and is of the non-indicating type. No. 287325 is of the indicating type. It uses the same receptacle as No. 147190 but a different plug.

Non-Indicating Fuse Block Complete

Mfrs. No.	Maximum Amps.	Maximum Volts	Wt. Lb. Net*	Price Each
147190	30	2500	5¼	**$2.60**
		Receptacle Only		
241509	30	2500	4	**1.80**
		Plug Only		
241510	30	2500	1¼	**1.00**
		Indicating Fuse Block Complete		
287325	30	2500	5¼	**3.20**
		Receptacle Only		
241509	30	2500	4	**2.25**
		Plug Only		
287306	30	2500	1¼	**1.75**

*Shipping weight in quantities is approximately 10 per cent greater.

LINK FUSES

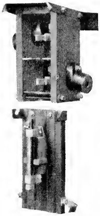
Fuses for use in plug-type transformer fuse blocks, No. 147190. Standard package quantity, 100.

Mfrs. No.	Continuous Cap. Amps.	Price Each	Mfrs. No.	Continuous Cap. Amps.	Price Each
224172	1	**$6.00**	**224177**	15	**$6.00**
224173	2	**6.00**	**224178**	20	**6.00**
224174	3	**6.00**	**224179**	25	**6.00**
224175	5	**6.00**	**224180**	30	**6.00**
224176	10	**6.00**	......	....	......

WESTINGHOUSE DISTRIBUTION TRANSFORMER FUSE BOXES

TYPE OD—SAFETY-FIRST

For Circuits Up to 7500 Volts


30 Ampere Box

Ideal for protection of outdoor distributing transformers. Heavy, compact, substantial box with through-bolts prevents warping. A one-piece metal top keeps the moisture out of the box, forms the mounting bracket and part of the very simple latching device. Mounting bracket at the extreme top of the box places the box on the cross arm as far below the transmission wires as possible. This feature adds to safety during installation and refusing. The fuse tube is made of hard, dense, hone fibre of ample size, which assures long life and adequate protection on severe short circuits. There is an interior barrier in the box which confines the gases to the lower chamber, and prevents any possibility of arcing between the upper and lower contacts. Base and outlet bushing are formed in one piece of moulded insulating material to insure proper insulation and to prevent charring. The fuse tube projects down into the outlet bushing in order that the hot gases may expand into the outer atmosphere instead of into the box.

Number and prices for the 30 and 100 ampere boxes include the box complete without the refill or auxiliary overload, but with hanger iron for mounting on a 4 inch cross arm. The hanger irons for cross arms of other sizes can be supplied at a considerable increase in price. Number and price of the overload auxiliary for the 100 ampere box include the complete overload auxiliary with the fusible element. Number and price of the refill include the complete fuse link for use with the 30 or 100 ampere fuse boxes.

Mfrs. No.	Amp. Cap.	Description	Std. Pkg.	Appx. Wt. Lb. Per Pkg. Net	Appx. Wt. Lb. Per Pkg. Gross	Price Each
374880	30	Box Complete	2	25	31	**$11.10**
323795	100	Box Complete	2	32	38	**16.30**
374881	30	Fuse Tube	2	3	5	**2.60**
323796	100	Fuse Tube	2	6	8	**4.15**
		Overload Auxiliary				
323812	5 to 100		5	1¼	1½	**.40**

Refill for No. 374880

Mfrs. No	Amp. Cap.	Wt., Oz. Net	Wt., Oz. Gss.	Price Each	Mfrs. No	Amp. Cap.	Wt., Oz. Net	Wt., Oz. Gss.	Price Each
374882	1	2	4	**$0.30**	**374888**	12	3	5	**$0.30**
374883	2	2	4	**.30**	**374889**	15	3	5	**.30**
374884	3	2	4	**.30**	**374890**	20	3	5	**.30**
374885	5	2	4	**.30**	**374891**	25	3	5	**.30**
374886	7	2	4	**.30**	**374892**	30	3	5	**.30**
374887	10	2	4	**.30**	....	....	..	..	....

Refill for No. 323795

Mfrs. No	Amp. Cap.	Wt., Oz. Net	Wt., Oz. Gss.	Price Each	Mfrs. No	Amp. Cap.	Wt., Oz. Net	Wt., Oz. Gss.	Price Each
323797	5	2	4	**.40**	**323805**	50	4	6	**.40**
323798	8	2	4	**.40**	**323806**	60	4	6	**.40**
323799	10	2	4	**.40**	**323807**	70	4	6	**.40**
323800	15	2	4	**.40**	**323808**	75	4	6	**.40**
323801	20	3	5	**.40**	**323809**	80	4	6	**.40**
323802	25	3	5	**.40**	**323810**	90	5	7	**.40**
323803	30	3	5	**.40**	**323811**	100	5	7	**.40**
323804	40	4	6	**.40**	....	....	..	..	....

Ten in a standard package.

PERKINS PUSH PANEL SWITCHES

SINGLE POLE FUSING

N. E. C. Standard

Each branch is fitted with a single pole switch mounted on a separate base which may be removed without disturbing either main or branch connections. Cabinets are not supplied. Switches may be installed in any standard cabinet having a minimum depth of 3 inches. Gutter cabinets may be used. Switch covers are furnished in glossy black; white enamel at no addition to list. All other finishes on covers **$0.50** addition to list. The covers of these switches are steel lined with insulating material.

WITH ONE PLUG FUSE RECEPTACLE IN EACH BRANCH

No. 27000

WITH SAFETY COVERS—10 Amperes, 125 Volts

Mfrs. No.	Schedule	Dimen. In.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
		Double Pole—Single Branch				
26098	H	6⅝x3	1	10	31	**$2.25**
		Double Pole—Double Branch				
26099	H	10½x3	1	10	47	**3.50**
		Triple to Double Pole—Double Branch				
27000	H	11⅝x3	1	10	50	**3.75**

WITH SAFETY COVERS—20 Amperes, 125 Volts

Mfrs. No.	Schedule	Dimen. In.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
		Double Pole—Single Branch				
27023	H	6⅝x3	1	10	30	**2.50**
		Double Pole—Double Branch				
27024	H	10½x3	1	10	47	**4.00**
		Triple to Double Pole—Double Branch				
27025	H	11⅝x3	1	10	49	**4.25**

WITH CLIPS FOR ONE CARTRIDGE FUSE IN EACH BRANCH

No. 26085

WITH SAFETY COVERS—10 Amperes, 250 Volts

Mfrs. No.	Schedule	Dimen. In.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
		Double Pole—Single Branch				
26084	H	7⅞x3	1	10	35	**$2.50**
		Double Pole—Double Branch				
26085	H	12⅞x3	1	10	59	**4.75**
		Triple to Double Pole—Double Branch				
26086	H	14 x3	1	10	61	**5.25**

WITH SAFETY COVERS—20 Amperes, 250 Volts

Mfrs. No.	Schedule	Dimen. In.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
		Double Pole—Single Branch				
27026	H	7⅞x3	1	10	35	**2.50**
		Double Pole—Double Branch				
27027	H	12⅞x3	1	10	58	**4.75**
		Triple to Double Pole—Double Branch				
27028	H	14 x3	1	10	60	**5.25**

Note.—Push button switches can be converted into push lock switches by substituting push lock mechanisms for push button mechanisms.

Can be furnished with luminous button at an addition to list price of **$0.25**.

PERKINS PUSH PANEL SWITCHES

DOUBLE POLE FUSING

N. E. C. Standard

Each branch is fitted with a double pole switch mounted on a separate base, which may be removed without disturbing either main or branch connections. Cabinets are not supplied. Switches may be installed in any standard cabinet having a minimum depth of 3 inches. Gutter cabinets may be used. Switch covers are furnished in glossy black; white enamel at no addition to list. All other finishes on covers **$0.50** addition to list. The covers of these switches are steel lined with insulating material.

WITH CONNECTIONS FOR TWO PLUG FUSES IN EACH BRANCH

No. 2700

WITH SAFETY COVERS—10 Amperes, 125 Volts

Mfrs. No.	Schedule	Dimen. In.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
		Double Pole—Single Branch				
2698	H	6⅝x3	1	10	31	**$2.25**
		Double Pole—Double Branch				
2699	H	10½x3	1	10	47	**3.50**
		Triple to Double—Double Branch				
2700	H	11⅝x3	1	10	50	**3.75**

WITH SAFETY COVERS—20 Amperes, 125 Volts

Mfrs. No.	Schedule	Dimen. In.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
		Double Pole—Single Branch				
2723	H	6⅝x3	1	10	30	**2.50**
		Double Pole—Double Branch				
2724	H	10½x3	1	10	47	**4.00**
		Triple to Double—Double Branch				
2725	H	11⅝x3	1	10	49	**4.25**

WITH CONNECTIONS FOR TWO CARTRIDGE FUSES IN EACH BRANCH

No. 2685

WITH SAFETY COVERS—10 Amperes, 250 Volts

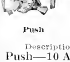
Mfrs. No.	Schedule	Dimen. In.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
		Double Pole—Single Branch				
2684	H	7⅞x3	1	10	35	**$2.50**
		Double Pole—Double Branch				
2685	H	12⅞x3	1	10	59	**4.75**
		Triple to Double—Double Branch				
2686	H	14 x3	1	10	61	**5.25**

WITH SAFETY COVERS—20 Amperes, 250 Volts

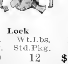
Mfrs. No.	Schedule	Dimen. In.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
		Double Pole—Single Branch				
2726	H	7⅞x3	1	10	35	**2.50**
		Double Pole—Double Branch				
2727	H	12⅞x3	1	10	58	**4.75**
		Triple to Double—Double Branch				
2728	H	14 x3	1	10	60	**5.25**

SWITCH MECHANISMS FOR ABOVE

Schedule H



Push



Lock

Mfrs. No.	Description	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
2523	Push—10 Amps.	10	50	12	**$0.80**
2729	Push—20 Amps.	10	50	12	**1.05**
2526	Lock—10 Amps.	10	50	12	**1.30**
2730	Lock—20 Amps.	10	50	12	**1.55**

100 assorted switch mechanisms also constitute a standard package.

BRYANT ENTRANCE AND PANEL SWITCHES

SINGLE POLE FUSING
N. E. C. Standard
30 Amperes, 125 Volts

The side of the line from whieh the fuse is omitted should always be the grounded side of the line.

Of the dimensions given the first is parallel to the blades. Fuses for these switches are shown on another page.

No. 16095

No. 16092

Double Pole with Connections for One Plug Fuse

Mfrs. No.	Schedule	Location of Fuses	Carton	Std Pkg.	Wt.Lb. Std Pkg.	Price Each
16095	J	Top	1	100	180	$0.90
19081	J	Bottom	1	100	180	.90

Dimensions of base, 5 17/32x3 3/16 inehes.

Double Pole with Connections for One Plug Fuse

Mfrs. No	Schedule	Location of Fuses	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
16092	J	Top	1	100	244	$1.00
19085	J	Bottom	1	100	244	1.00

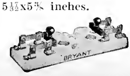
Dimensions of base, 6½x3⅞ inehes.

Triple Pole with Connections for Two Plug Fuses
The Middle or Neutral Wire Fuse Is Omitted

Mfrs. No.	Schedule	Location of Fuses	Carton	Std Pkg	Wt.Lb. Std Pkg.	Price Each
16093	J	Top	1	50	156	$1.40
19086	J	Bottom	1	50	156	1.40

Dimensions of base, 5 17/32x5⅜ inehes.

No. 18051


No. 18052

Double Pole—Single Branch
With Connections for One Plug Fuse in Branch

Mfrs. No.	Schedule	Location of Fuses	Carton	Std. Pkg	Wt.Lb. Std Pkg.	Price Each
18051	J	Top	1	100	228	$1.50
19082	J	Bottom	1	100	228	1.50

Dimensions of base, 3 3/16x6½ inehes.

Double Pole—Single Branch
With Connections for One Plug Fuse in Each Branch

Mfrs. No.	Schedule	Location of Fuses	Carton	Std Pkg	Wt.Lb. Std Pkg.	Price Each
16094	J	Top	1	50	125	$1.70
19087	J	Bottom	1	50	125	1.70

Dimensions of base, 3 7/32x7 7/16 inehes.

Double Pole—Double Branch
With Connections for One Plug Fuse in Each Branch—For Vertical Mains

Mfrs. No	Schedule	Carton	Std Pkg	Wt.Lb. Std.Pkg.	Price Each
18052	J	1	50	200	$3.40
For Horizontal Mains					
19083	J	1	50	200	3.40

Dimensions of base, 3 3/16x10⅞ inches.

Triple to Double Pole—Double Branch
With Connections for One Plug Fuse in Each Branch—Neutral Main Is Connected to Unfused Side in Each Branch
For Vertical Mains

Mfrs. No	Schedule	Carton	Std. Pkg.	Wt.Lb. Std Pkg.	Price Each
19047	J	1	50	230	$3.60
For Horizontal Mains					
19084	J	1	50	232	3.60

Dimensions of base, 3 3/16x11⅞ inehes.

BRYANT ENTRANCE AND PANEL SWITCHES

DOUBLE POLE FUSING
N. E. C. Standard
30 Amperes, 125 Volts

Of the dimensions given the first is parallel to the blades. Fuses for these switehes are shown on another page.

No. 1695

No. 1692

Double Pole with Connections for Two Plug Fuses

Mfrs. No.	Schedule	Location of Fuses	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
1695	J	Top	1	100	180	$0.90
1981	J	Bottom	1	100	180	.90

Dimensions of base, 5 17/32x3 3/16 inehes.

Double Pole with Connections for Two Plug Fuses

Mfrs. No.	Schedule	Location of Fuses	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
1692	J	Top	1	100	244	$1.00
1985	J	Bottom	1	100	244	1.00

Dimensions of base, 6½x3⅞ inehes.

Triple Pole with Connections for Three Plug Fuses

Mfrs. No.	Schedule	Location of Fuses	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
1693	J	Top	1	50	156	$1.40
1986	J	Bottom	1	50	156	1.40

Dimensions of base, 5 17/32x5⅜ inches.

No. 1851

No. 1852

Double Pole—Single Branch
With Connections for Two Plug Fuses in Branch

Mfrs. No.	Schedule	Location of Fuses	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
1851	J	Top	1	100	228	$1.50
1982	J	Bottom	1	100	228	1.50

Dimensions of base, 6½x3 3/16 inches.

Double Pole—Single Branch
With Connections for Two Plug Fuses in Branch

Mfrs. No.	Schedule	Location of Fuses	Carton	Std. Pkg.	Wt.Lb Std.Pkg.	Price Each
1694	J	Top	1	50	125	$1.70
1987	J	Bottom	1	50	125	1.70

Dimensions of base, 7 7/16x3 7/32 inehes.

Double Pole—Double Branch
With Connections for Two Plug Fuses in Each Branch—For Vertical Mains

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
1852	J	1	50	200	$3.40
For Horizontal Mains					
1983	J	1	50	200	3.40

Triple to Double Pole—Double Branch
With Connections for Two Plug Fuses in Each Branch—For Vertical Mains

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std Pkg.	Price Each
1947	J	1	50	230	$3.60
For Horizontal Mains					
1984	J	1	50	232	3.60

BRYANT PLUG FUSE CUT-OUT BASES

N. E. C. Standard

These cut-outs will be supplied, when so specified, with one or more poles not fusible, without extra charge. Of the dimensions shown, the one first given is that parallel to the mains.

SINGLE POLE FUSING

30 Amperes, 125 Volts

Double Pole—Main

Dimensions $2\frac{15}{16}$x$2\frac{9}{16}$ inches.

Mfrs. No.	Sched-ule	Car-ton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
62065	J	10	150	100	$0.32

Double Pole—Single Branch

Dimensions $2\frac{15}{16}$x$3\frac{19}{32}$ inches.

Mfrs. No.	Sched-ule	Car-ton	Std. Pkg.	Wt Lb. Std.Pkg.	Price Each
61035	J	5	100	95	$0.35

Double Pole—Single or Double Cross-Over Branch

Dimensions $3\frac{11}{32}$x$3\frac{11}{32}$ inches.

Mfrs. No.	Sched-ule	Car-ton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
80020	J	5	150	164	$0.36

Double Pole—Double Branch

Dimensions $2\frac{15}{16}$x$5\frac{9}{32}$ inches.

Mfrs. No.	Sched-ule	Car-ton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
62087	J	5	100	144	$0.62

Triple to Double Pole— Double Branch

Dimensions $2\frac{15}{16}$x$6\frac{5}{16}$ inches.

Mfrs. No.	Sched-ule	Car-ton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
62099	J	5	100	180	$0.68

Triple Pole—Main

Dimensions $2\frac{9}{16}$x$4\frac{7}{16}$ inches.

Mfrs. No.	Sched-ule	Car-ton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
62066	J	5	100	100	$0.55

Triple Pole—Single Branch

Dimensions $4\frac{7}{16}$x$4\frac{5}{8}$ inches.

Mfrs. No.	Sched-ule	Car-ton	Std. Pkg.	Wt.Lb Std.Pkg.	Price Each
80042	J	1	75	140	$0.70

Triple Pole—Double Branch

Dimensions $4\frac{7}{16}$x$6\frac{5}{16}$ inches.

Mfrs. No.	Sched-ule	Car-ton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
62035	J	1	50	140	$0.94

BRYANT PLUG FUSE CUT-OUT BASES

N. E. C. Standard

These cut-outs will be supplied, when so specified, with one or more poles not fusible, without extra charge. Of the dimensions shown, the one first given is that parallel to the mains.

DOUBLE POLE FUSING

30 Amperes, 125 Volts

Single Pole—Main

Mfrs. No.	Sched-ule	Dimens. Inches	Car-ton	Std. Pkg.	Pkg. Wt.	Price Each
62569	J	$2\frac{3}{4}$x$1\frac{29}{32}$	10	150	65	$0.24

Double Pole—Main

Mfrs. No.	Sched-ule	Dimens. Inches	Car-ton	Std. Pkg.	Pkg. Wt.	Price Each
62965	J	$2\frac{15}{16}$x$2\frac{9}{16}$	10	150	100	$0.32

With Marine Screw Shells

Mfrs. No.	Sched-ule	Dimens. Inches	Car-ton	Std. Pkg.	Pkg. Wt.	Price Each
625	J	$3\frac{1}{2}$x$2\frac{3}{8}$	10	150	180	$0.96

With Marine Screw Shells and Additional Terminals for Cartridge Fuses

Mfrs. No.	Sched-ule	Dimens. Inches	Car-ton	Std. Pkg.	Pkg. Wt.	Price Each
626	J	$3\frac{1}{2}$x$2\frac{7}{8}$	10	150	205	$1.60

Double Pole—Single Branch

Mfrs. No.	Sched-ule	Dimens. Inches	Car-ton	Std. Pkg.	Pkg. Wt	Price Each
61935	J	$2\frac{15}{16}$x$3\frac{19}{32}$	5	100	95	$0.35

Double Pole—Single or Double Cross-Over Branch

Mfrs. No.	Sched-ule	Dimens. Inches	Car-ton	Std. Pkg.	Pkg. Wt.	Price Each
8020	J	$3\frac{11}{32}$x$3\frac{11}{32}$	5	150	164	$0.36

Double Pole—Double Branch

Mfrs. No	Sched-ule	Dimens. Inches	Car-ton	Std. Pkg.	Pkg. Wt.	Price Each
62587	J	$2\frac{15}{16}$x$5\frac{9}{32}$	5	100	144	$0.62

Triple to Double Pole Double Branch

Dimensions $2\frac{15}{16}$x$6\frac{5}{16}$ inches.

Mfrs. No.	Sched-ule	Car-ton	Std. Pkg.	Wt.Lbs. Std Pkg.	Price Each
62199	J	5	100	180	$0.68

Triple Pole—Main

Mfrs. No.	Sched-ule	Dimens Inches	Car-ton	Std. Pkg.	Pkg. Wt.	Price Each
62165	J	$2\frac{9}{16}$x$4\frac{7}{16}$	5	100	100	$0.55

Triple Pole—Single Branch

Mfrs. No.	Sched-ule	Dimens. Inches	Car-ton	Std. Pkg.	Pkg. Wt.	Price Each
8042	J	$4\frac{7}{16}$x$4\frac{5}{8}$	1	75	140	$0.70

Triple Pole—Double Branch

Dimensions $4\frac{7}{16}$x$6\frac{5}{16}$ inches.

Mfrs. No.	Sched-ule	Car-ton	Std. Pkg.	Wt.Lbs. Std Pkg.	Price Each
62135	J	1	50	140	$0.94

BRYANT ENCLOSED FUSE CUT-OUTS

250 VOLTS—N. E. C. Standard

Of the dimensions shown, the one first given is that parallel to the mains.

No. 19017

No. 19024

PORCELAIN—Schedule E3

Double Pole——Main

Mfrs. No.	Amperes	Dimens. In.	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
19017	1–30	3 5/16x2 13/16	10	50	52	$0.55
19018	31–60	5 x3 5/8	1	50	145	1.40
20071	61–100	7 5/8x3 7/8	1	50	240	2.80

Triple Pole—Main

Mfrs. No.	Amperes	Dimens. In	Carton	Std. Pkg.	Wt.Lb. Std Pkg.	Price Each
19024	1–30	3 5/16x4 1/16	5	50	68	$0.80
19025	31–60	5 x5 5/16	1	50	204	2.00
20072	61–100	7 5/8x5 5/8	1	25	176	4.00

No. 19019

No. 19022

Double Pole—Single Branch

Mfrs. No.	Amperes	Dimens. In	Carton	Std. Pkg.	Wt.Lb. Std Pkg.	Price Each
19019	1–30	4 15/16x2 13/16	5	50	82	$0.70
19020	31–60	6 13/16x3 5/8	1	50	200	1.75

Double Pole—Double Branch

Mfrs. No.	Amperes	Dimens. In.	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
19022	1–30	7 3/4x2 13/16	1	25	68	$1.30
19096	31–60	10 5/8x3 5/8	1	25	150	3.50

Triple to Double Pole—Double Branch

Mfrs. No.	Amperes	Dimens. In.	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
19023	1–30	8 7/8x2 13/16	1	25	86	$1.50
19097	31–60	11 7/8x3 5/8	1	25	165	4.20

Triple Pole—Single Branch

Mfrs. No.	Amperes	Dimens. In.	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
19026	1–30	6 1/16x4 1/16	1	50	152	$1.35
19027	31–60	8 1/16x5 5/16	1	50	375	3.00

Triple Pole—Double Branch

Mfrs. No.	Amperes	Dimens. In.	Carton	Std Pkg.	Wt.Lb. Std.Pkg.	Price Each
19028	1–30	8 7/8x4 1/16	1	25	110	$2.25
19098	31–60	11 7/8x5 5/16	1	10	96	6.00

BRYANT CARTRIDGE FUSE CUT-OUT BASES

600 VOLTS—N. E. C. Standard

No. 1938

No. 1941

SINGLE POLE

Porcelain Base—Schedule E3

Mfrs No.	Amperes	Dimens. In.	Carton	Std. Pkg.	Wt.Lb Std.Pkg.	Price Each
1937	1–30	7 x1½	5	50	55	$0.60
1938	31–60	7 5/8x1¾	5	50	70	.90
1939	61–100	9¾x2	1	50	112	1.75
1940	101–200	12⅛x2	1	50	160	2.30

Slate Base—Schedule E4

1941	61–100	9¾x2	1	50	130	1.75
1942	101–200	12⅛x2¼	1	50	232	2.30
1943	201–400	14¾x3	1	25	210	6.00
1944	401–600	17 x3½	1	10	166	7.80

BRYANT ENCLOSED FUSE CUT-OUTS

250 VOLTS—N. E. C. Standard

No. 1929

PORCELAIN—Schedule E3

Of the dimensions shown, the one first given is that parallel to the mains.

Single Pole—Main

Mfrs. No.	Amperes	Dimens. In.	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
1929	1–30	5½x1½	5	50	40	$0.40
1930	31–60	5½x1½	5	50	47	.65
1931	61–100	7¾x2	1	50	96	1.40
1932	101–200	9 5/8x2¼	1	50	164	2.75

SLATE—Schedule E4

Single Pole—Main

648	1–30	4¾x1 5/8	5	50	38	.40
649	31–60	6 x1¾	5	50	84	.65
1933	61–100	7¾x2	1	50	116	1.40
1934	101–200	9 5/8x2¼	1	25	98	2.10
1935	201–400	11¾x3	1	25	180	5.25
1936	401–600	14 x3½	1	10	128	7.20

PORCELAIN—Schedule E3

No. 1917

No. 1924

Double Pole—Main

1917	1–30	3 5/16x2 13/16	10	50	52	.55
1918	31–60	5 x3 5/8	1	50	145	1.40
271	61–100	7 5/8x3 7/8	1	50	240	2.80

Triple Pole—Main

1924	1–30	3 5/16x4 1/16	5	50	68	.80
1925	31–60	5 x5 5/16	1	50	204	2.00
272	61–100	7 5/8x5 5/8	1	25	176	4.00

No. 1919

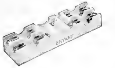
No. 1922

Double Pole—Single Branch

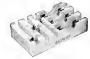
1919	1–30	4 15/16x2 3/16	5	50	82	.70
1920	31–60	6 13/16x3 5/8	1	50	200	1.75

Double Pole—Double Branch

1922	1–30	7¾x2 13/16	1	25	68	1.30
1996	31–60	10 5/8x3 5/8	1	25	150	3.50



No. 1923



No. 1926

Triple to Double Pole—Double Branch

1923	1–30	8 7/8x2 13/16	1	25	86	$1.50
1997	31–60	11 7/8x3 5/8	1	25	165	4.20

Triple Pole—Single Branch

1926	1–30	6 1/16x4 1/16	1	50	152	1.35
1927	31–60	8 1/16x5 5/16	1	50	375	3.00

Triple Pole—Double Branch

1928	1–30	8 7/8x4 1/16	1	25	110	2.25
1998	31–60	11 7/8x5 5/16	1	10	96	6.00

TRUMBULL FUSE BLOCKS

National Electrical Code Standard
OILED SLATE BASE
250 Volts D. C. and A. C.

3-60 Amp., 250 V. Type

61-200 Amp., 250 V. Type.

Single Pole

Mfrs. No.	Amp.	Overall Dimen. Inches W.	L.	D.	Net Wt. Each Lbs.	Price Each
8000	3-30	1 5/8	4 3/8	1 5/8	1/2	$0.40
8001	31-60	1 3/4	6 1/2	1 7/8	1	.65
*8002	61-100	2	10	2 1/4	2	1.40
*8003	101-200	2 1/2	11 3/4	3	3 1/2	2.10
*8004	201-400	3	15 3/4	3 11/16	7 3/4	5.25
*8005	401-600	3	18 5/8	4 1/4	9 1/2	7.20
8006	601-800	6	14	4	14	18.00
8007	801-1200	7 1/4	18 1/8	4 1/2	17	24.00

Double Pole

Mfrs. No.	Amp.	Overall Dimen. Inches W.	L.	D.	Net Wt. Each Lbs.	Price Each
8010	3-30	4	4	1 5/8	1	$0.60
8011	31-60	4 1/2	6 1/2	1 7/8	2 3/4	1.12
8012	61-100	5	10	2 1/2	5	1.80
8013	101-200	6	11 3/4	3	8 1/4	4.20
8014	201-400	7 1/4	15 3/4	3 7/8	17	10.25
8015	401-600	8	18 5/8	4 3/8	20	13.75
8016	601-800	12 1/2	14	4	28	21.80
8017	801-1200	14	18 1/8	4 1/2	34	28.40

Three Pole

Mfrs. No.	Amp.	Overall Dimen. Inches W.	L.	D.	Net Wt. Each Lbs.	Price Each
8019	3-30	5 1/2	4	1 5/8	1 1/2	$0.90
8021	31-60	6	6 1/2	1 7/8	3	1.68
8022	61-100	7	10	2 1/2	6 3/4	2.70
8023	101-200	9 3/4	11 3/4	3	12 3/4	6.30
8024	201-400	12	15 3/4	3 7/8	26	15.50
8025	401-600	12 1/2	18 5/8	4 3/4	30	21.00
8026	601-800	20	14	4	42	33.00
8027	801-1200	22	18 1/8	4 1/2	51	42.50

Four Pole

Mfrs. No.	Amp.	Overall Dimen. Inches W.	L.	D.	Net Wt. Each Lbs.	Price Each
8030	3-30	7 1/2	4	1 5/8	2	$1.20
8031	31-60	8 1/2	6 1/2	1 7/8	4	2.24
8032	61-100	10	10	2 1/2	9	3.60
8033	101-200	13	11 3/4	3	16	8.40
8034	201-400	16	15 3/4	3 7/8	35	20.50
8035	401-600	18	18 5/8	4 1/4	40	27.00
8036	601-800	28	14	4	56	43.00
8037	801-1200	30	18 1/8	4 1/2	68	53.60

*These sizes with lugs on side can be furnished at same price as regular. This construction shortens block and saves box room. Order by Nos. **8092, 8093, 8094, 8095**, in order of ampere 61-600 Amp.

Dimensions shown above are overall dimensions and depth of fuse blocks to be used in estimating box sizes.

TRUMBULL FUSE BLOCKS

National Electrical Code Standard
OILED SLATE BASE
251-600 Volts D. C. and A. C.

601-1200 Amp., 250 V. Type, Multiple Fuse Clips

Single Pole

Mfrs. No.	Amp.	Overall Dimen. Inches W.	L.	D.	Net Wt. Each Lbs.	Price Each
8050	3-30	1 3/4	6 1/2	1 5/8	3/4	$0.60
8051	31-60	1 3/4	8 1/2	2	1 1/2	.90
8052	61-100	2	12	2 1/4	2	1.75
8053	101-200	3	14 1/4	3	5	2.30
8054	201-400	3	18 1/2	4 1/4	8	6.00
8055	401-600	4	21 5/8	3 11/16	11	7.80
8056	601-800	7	18	4	18	26.00
8057	801-1200	8	21 1/8	4 1/2	22	34.50

Double Pole

Mfrs. No.	Amp.	Overall Dimen. Inches W.	L.	D.	Net Wt. Each Lbs.	Price Each
8060	3-30	4	6 1/2	1 5/8	2	$0.92
8061	31-60	5	8 1/2	2	4	1.36
8062	61-100	5	12	2 1/4	7 1/2	2.64
8063	101-200	6 1/2	14 1/4	3	14	4.60
8064	201-400	8	18 3/4	3 11/16	19	12.00
8065	401-600	9 1/4	21 5/8	4 1/4	22	15.60
8066	601-800	14 1/2	18	4	36	27.00
8067	801-1200	16 1/2	21 1/8	4 1/2	44	35.50

Three Pole

Mfrs. No.	Amp.	Overall Dimen. Inches W.	L.	D.	Net Wt. Each Lbs.	Price Each
8070	3-30	7 1/4	6 1/2	1 5/8	3	$1.42
8071	31-60	8	8 1/2	2	5 1/2	2.12
8072	61-100	9	12	2 3/8	10 3/4	4.00
8073	101-200	10 1/2	14 1/4	3 1/8	17	7.00
8074	201-400	12 1/2	18 3/4	3 11/16	30	18.00
8075	401-600	14 1/2	21 5/8	4 1/4	36	23.40
8076	601-800	22	18	4	54	40.00
8077	801-1200	26	21 1/8	4 1/2	66	53.50

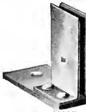
Four Pole

Mfrs. No.	Amp.	Overall Dimen. Inches W.	L.	D.	Net Wt. Each Lbs.	Price Each
8080	3-30	10	6 1/2	1 7/8	4	$1.54
8031	31-60	11	8 1/2	2 1/8	6	2.72
8082	61-100	12 1/2	12	2 3/8	14	5.28
8033	101-200	14 1/2	14 1/4	3 1/8	24	9.20
8034	201-400	17 1/2	18 3/4	3 11/16	40	24.00
8085	401-600	20	21 5/8	4 1/4	48	31.20
8036	601-800	30	18	4	72	53.50
8087	801-1200	35	21 1/8	4 1/2	88	71.00

Dimensions shown above are overall dimensions and depth of fuse blocks to be used in estimating box sizes.

TRUMBULL FUSE CLIPS
FOR N. E. C. STANDARD FUSES

No. 3A


No. 1021C

For 250 Volt Fuses

Mfrs. No.	For Use with Switches	Amp.	Net Wt. Per 100	Price, per Clip Plain	Satin
3A	Type A	3-30	1¼	**$0.03**	**$0.04**
3C	Type C	3-30	1¼	**.03**	**.04**
3K	Kappa	3-30	1¼	**.03**	**.04**
3P	Panel	3-30	1¼	**.03**	**.04**
4A	Type A	31-60	3¼	**.065**	**.08**
4C	Type C	31-60	3¼	**.065**	**.08**
1021A	Type A	61-100	16	**.36**	**.44**
1021C	Type C	61-100	16	**.14**	**.175**
1023A	Type A	101-200	32	**.50**	**.64**
1023C	Type C	101-200	32	**.30**	**.375**
		For 600 Volt Fuses			
103A	Type A	3-30	1¾	**.06**	**.075**
103C	Type C	3-30	1¾	**.06**	**.075**
104A	Type A	31-60	3¾	**.09**	**.11**
104C	Type C	31-60	3¾	**.09**	**.11**
1022A	Type A	61-100	16	**.36**	**.44**
1022C	Type C	61-100	16	**.14**	**.175**
1024A	Type A	101-200	32	**.50**	**.64**
1024C	Type C	101-200	32	**.30**	**.375**

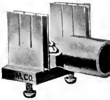
3-60 Amp. type "A" clips fit on top of foot blocks and are down-dented to prevent turning. Type "C" 3-60 amp. fit under fuse blocks. 61-600 amp. type "A" clips have blades soldered and pinned to foot blocks. 61-200 amp. type "C" have blades riveted to foot blocks. Type "K" and "P" are narrow at base.

Ferrule contact fuse clips 3-60 amp. are made in one piece from special quality bronze. Blade contact clips 61-600 amp. are made of pure hard-drawn copper.

TRUMBULL FUSE HOLDERS
FRONT CONNECTIONS

3-60 Amp. Type

61-600 Amp. Type


601-1200 Amp. Type Double Fuses Used

Mfrs. No.	Cap. Amp.	Volts	Price, Each Plain	Satin
***1048**	3-30	250	**$0.20***	**$0.26***
***1048½**	3-30	600	**.23***	**.29***
1049	31-60	250	**.32**	**.40**
1049½	31-60	600	**.35**	**.45**
1051	61-100	250	**.50**	**.64**
1052	101-200	250	**.80**	**1.00**
1053	201-400	250	**1.90**	**2.25**
1054	401-600	250	**2.50**	**2.90**
1055	601-800	250	**4.10**	**4.80**
1056	801-1200	250	**5.25**	**6.25**

The above front connected Fuse Holders are furnished with screws for bases ½ inch thick, unless otherwise specified.

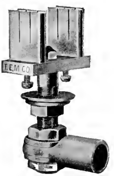
Plain finish sent unless otherwise specified.

*Without lugs.

TRUMBULL FUSE HOLDERS
BACK CONNECTIONS

No. 1070

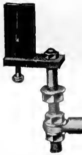
No. 1074


No. 1077

Square Posts

Mfrs. No	Volts	Cap. Amp.	Diam. Stud, In.	Price per Holder Satin	Plain
1070	250	3-30	¼	**$0.25***	**$0.20***
1070½	600	3-30	¼	**.30***	**.23***
†1070S	250	3-30	¼	**.25***	**.20***
†1070½S	600	3-30	¼	**.30***	**.23***
1071	250	31-60	5/16	**.40**	**.34**
1071½	600	31-60	5/16	**.45**	**.37**
†1071S	250	31-60	5/16	**.40**	**.34**
†1071½S	600	31-60	5/16	**.45**	**.37**
1073	250 and 600	61-100	⅜	**.90**	**.80**
1074	250 and 600	101-200	½	**1.40**	**1.20**
1075	250 and 600	201-400	¾	**3.20**	**2.80**
1076	250 and 600	401-600	15/16	**4.50**	**4.00**
1077	250	601-800	1⅛	**8.20**	**7.50**
1077½	600	601-800	1⅛	**8.20**	**7.50**
1078	250	801-1000	1⅛	**11.00**	**10.00**
1079	600	801-1000	1⅛	**11.00**	**10.00**
1096	250	1001-1200	1¼	**11.00**	**10.00**
1096½	600	1001-1200	1¼	**11.00**	**10.00**

No. 1081


No. 1084

Extended Posts

Mfrs. No	Volts	Cap. Amp.	Diam. Stud, In.	Satin	Plain
1080	250	3-30	¼	**.30***	**.25***
1080½	600	3-30	¼	**.35***	**.28***
1081	250	31-60	5/16	**.47**	**.41**
1081½	600	31-60	5/16	**.52**	**.44**
1083	250 and 600	61-100	⅜	**.90**	**.80**
1084	250 and 600	101-200	½	**1.40**	**1.20**
1085	250 and 600	201-400	¾	**3.20**	**2.80**
1086	250 and 600	401-600	5/16	**4.50**	**4.00**

The above Fuse Holders furnished with lugs, lug nuts, studs and screws for bases 1 inch thick, unless otherwise specified. Satin finish sent when finish is not stated. *Without Lugs. †For use with switches. The foot blocks on switches with square posts are thicker than on those with extended posts and reinforcing blocks are placed under fuse clips to raise to level of switch posts. There are no blocks on fuse holders that are not used with switches.

BRYANT DEAD FRONT CUT-OUT BASES

PLUG FUSE TYPE

N. E. C. Standard

30 Amperes, 125 Volts

Covers are steel, lined with insulating material which extends ⅛ inch beyond end of steel. Furnished in porcelain bases with glossy black covers. White enamel covers can be supplied without extra charge. For other finishes on covers, add **$0.50** each to list.

WITH SAFETY COVERS—Double Pole Fusing With Connections for Two Plug Fuses in Each Branch

Double Pole—Double Branch

No. 72587

Dimensions of base: length, $5\frac{9}{32}$ inches; width, $2\frac{13}{16}$ inches. Screw spacings, $4\frac{19}{32}$ inches. Height over all, $2\frac{1}{32}$ inches.

Dimensions of covers: No. 72587, $5\frac{9}{32}$x$3\frac{5}{32}$ inches; No. 82587, 8x3 inches.

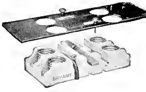
With Short Cover

Mfrs. No.	Schedule	Carton	Std Pkg	Wt.Lb. Std Pkg.	Price Each
72587	J	1	20	42	**$1.45**
With Long Cover					
82587	J	1	20	45	**1.55**

Triple to Double Pole—Double Branch

Dimensions of base: length, $6\frac{9}{32}$ inches; width, $2\frac{5}{16}$ inches. Screw spacings, $5\frac{19}{32}$ inches. Height over all, $2\frac{1}{32}$ inches.

Dimensions of covers: No. 72199, $6\frac{9}{32}$x$3\frac{5}{32}$ inches; No. 82199, $9\frac{3}{4}$x$3\frac{5}{32}$ inches.



With Short Cover

Mfrs. No.	Schedule	Carton	Std Pkg.	Wt.Lb. Std Pkg.	Price Each
72199	J	1	20	46	**$1.65**
With Long Cover					
82199	J	1	20	56	**1.75**

WITH SAFETY COVERS—Single Pole Fusing With Connections for One Plug Fuse in Each Branch

Double Pole—Double Branch

No. 82087

Dimensions of base: length, $5\frac{9}{32}$ inches; width, $2\frac{13}{16}$ inches. Screw spacings, $4\frac{19}{32}$ inches. Height over all, $2\frac{1}{32}$ inches.

Dimensions of covers: No. 72087, $6\frac{9}{32}$x$3\frac{5}{32}$ inches; No. 82087, 8x$3\frac{5}{32}$ inches.

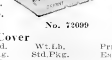
With Short Cover

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
72087	J	1	20	42	**$1.45**
With Long Cover					
82087	J	1	20	45	**1.55**

Triple to Double Pole—Double Branch

Dimensions of base: length, $6\frac{9}{32}$ inches; width, $2\frac{13}{16}$ inches. Screw spacings, $4\frac{19}{32}$ inches. Height over all, $2\frac{1}{32}$ inches.

Dimensions of covers: No. 72099, $6\frac{9}{32}$x$3\frac{5}{32}$ inches; No. 82099, $9\frac{3}{4}$x$3\frac{5}{32}$ inches.



No. 72099

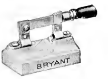
With Short Cover

Mfrs. No.	Schedule	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
72099	J	1	20	46	**$1.65**
With Long Cover					
82099	J	1	20	56	**1.75**

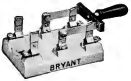
BRYANT BABY KNIFE SWITCHES

Schedule H

PORCELAIN BASE—125 VOLTS



No. 1436

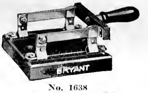


No. 1456

Mounted switches are plain finish, but will be furnished polished on special order at an addition to list of 20 per cent. Of the dimensions, that given first is the one parallel to the blades.

Mfrs. No.	Amperes	Size Base Inches	Carton	Std Pkg.	Wt.Lb Std.Pkg.	Price Each
Single Pole—Single Throw						
1436	15	$2\frac{11}{16}$x$1\frac{7}{16}$	10	100	35	**$0.34**
***1437**	30	$2\frac{25}{32}$x$1\frac{7}{16}$	10	100	48	**.44**
Single Pole—Double Throw						
1454	15	$4\frac{1}{8}$x$1\frac{1}{4}$	10	50	25	**.60**
***1455**	30	$4\frac{5}{16}$x$1\frac{1}{4}$	10	50	28	**.74**
Double Pole—Single Throw						
1438	15	$2\frac{11}{16}$x$2\frac{21}{32}$	10	100	67	**.42**
***1439**	30	$2\frac{13}{16}$x$2\frac{25}{32}$	10	100	77	**.50**
Double Pole—Double Throw						
1456	15	$4\frac{5}{32}$x$2\frac{25}{32}$	5	50	56	**.74**
***1457**	30	$4\frac{11}{32}$x$2\frac{25}{32}$	5	50	58	**.90**
Triple Pole—Single Throw						
1440	15	$4\frac{3}{8}$x$2\frac{11}{16}$	5	25	30	**.90**
***1441**	30	$4\frac{17}{32}$x$2\frac{13}{16}$	5	25	35	**1.10**

SLATE BASE—250 VOLTS



No. 1638

No. 1636

Mfrs. No	Amperes	Size Base Inches	Carton	Std Pkg.	Wt.Lb. Std.Pkg.	Price Each
Single Pole—Single Throw						
1636	15	$3\frac{5}{16}$x$1\frac{1}{2}$	10	100	49	**$0.40**
***1637**	30	$3\frac{5}{16}$x$1\frac{1}{2}$	10	100	56	**.50**
Single Pole—Double Throw						
1654	15	$5\frac{3}{8}$x$1\frac{1}{2}$	5	50	38	**.68**
***1655**	30	$5\frac{3}{8}$x$1\frac{1}{2}$	5	50	40	**.84**
Double Pole—Single Throw						
1638	15	$3\frac{5}{16}$x$3\frac{1}{4}$	5	100	98	**.50**
***1639**	30	$3\frac{5}{16}$x$3\frac{1}{4}$	5	100	104	**.60**
Double Pole—Double Throw						
1656	15	$5\frac{3}{8}$x$3\frac{1}{4}$	5	50	81	**.86**
***1657**	30	$5\frac{3}{8}$x$3\frac{1}{4}$	5	50	87	**1.04**
Triple Pole—Single Throw						
1640	15	$3\frac{5}{16}$x$5\frac{1}{2}$	5	25	42	**1.04**
***1641**	30	$3\frac{5}{16}$x$5\frac{1}{2}$	5	25	45	**1.30**
Triple Pole—Double Throw						
1658	15	$5\frac{3}{8}$x$5\frac{1}{2}$	1	10	15	**1.40**
***1659**	30	$5\frac{3}{8}$x$5\frac{1}{2}$	1	10	17	**1.64**

*National Electrical Code Standard.

Knife Switches

TYPE "C" KNIFE SWITCHES

The following pages give a partial listing of Type "C" Knife Switches in the standard sizes.

Type "C" Switches are not made above 200 ampere. This type is known as the "bent up" type. That is, the blades, jaw posts, and hinge posts are each made of one piece of copper, "bent up" to proper shape, with the exception of 100 and 200 ampere, which have "bent up" fingers, riveted to a foot block of heavier stock.

TYPE "A" KNIFE SWITCHES

The Type "A" Switch is not listed in this catalog. It may be had in either front or rear connected. These are known as built up switches and are much heavier in construction than the Type "C", and are adapted to severe operating conditions.

Catalogs and prices on Types "A" and "C" Knife Switches will be furnished upon request, covering the following lines.

Westinghouse Electric & Mfg. Company

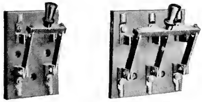
Trumbull Electric Manufacturing Company

WESTINGHOUSE TYPE C SWITCHES

FRONT CONNECTED—PLAIN FINISH

Without Quick Break Attachments

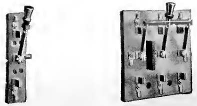
250 VOLTS D. C. AND 500 VOLTS A. C.



SINGLE THROW—NOT FUSED

Single Pole Mfrs. No	Single Pole Wt.Lb. Each	Single Pole Price Each	Amps. †	Double Pole Mfrs. No.	Double Pole Wt.Lb. Each	Double Pole Price Each
228322	½	$0.42	*30	228326	1	$0.68
254396	1	.66	‡30	254397	2¼	1.06
228323	1	.74	60	228327	2¼	1.22
228324	1½	1.50	100	228328	3	2.50
228325	2½	2.70	200	228329	5	4.50

Three Pole Mfrs. No.	Three Pole Wt.Lb. Each	Three Pole Price Each	Amps. †	Four Pole Mfrs. No.	Four Pole Wt.Lb. Each	Four Pole Price Each
228330	1¾	$1.02	*30	228335	3	$1.36
228331	4	1.60	‡30	228336	7	2.14
228332	4	1.84	60	228337	7	2.44
228333	5¾	3.76	100	228338	11	5.00
228334	9	6.76	200	228339	15	9.00



DOUBLE THROW—NOT FUSED

Single Pole Mfrs. No.	Single Pole Wt.Lb. Each	Single Pole Price Each	Amps. †	Double Pole Mfrs. No.	Double Pole Wt Lb. Each	Double Pole Price Each
228340	1¼	$0.76	*30	228344	2	$1.16
254398	2	1.16	‡30	254399	3¾	1.70
228341	2	1.30	60	228345	3¾	2.00
228342	3¼	2.94	100	228346	6¼	4.50
228343	5	4.88	200	228347	9	7.50

Three Pole Mfrs. No	Three Pole Wt.Lb. Each	Three Pole Price Each	Amps. †	Four Pole Mfrs. No.	Four Pole Wt.Lb. Each	Four Pole Price Each
228348	3¼	$1.80	*30	228353	6¾	$2.56
228349	6½	2.66	‡30	228354	12	3.84
228350	6½	3.10	60	228355	12	4.40
228351	9	6.90	100	228356	17	9.80
228352	17	11.60	200	228357	19	15.50

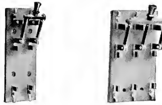
Plain finish. Satin finish, add 30 per cent. Polished finish, add 10 per cent to price of satin finish. Slate bases included in number and price. Unmounted switches, deduct 10 per cent. Terminals included in number and price. Spade handles included in number and price for all four pole switches and all three pole switches above 600 amperes. Straight handles are included on all other switches.

*For 250 volts D. C. only. ‡For 500 volts A. C. †All ratings are D. C. or A. C. on either the 20 or 30 degree rise basis.

WESTINGHOUSE TYPE C SWITCHES

FRONT CONNECTED—PLAIN FINISH

Without Quick Break Attachments



SINGLE THROW—FUSED AT BOTTOM

250 Volts D. C. and A. C.

Single Pole Mfrs. No.	Single Pole Wt.Lb. Each	Single Pole Price Each	Amps. †	Double Pole Mfrs. No.	Double Pole Wt.Lb. Each	Double Pole Price Each
228358	1	$0.70	30	228362	2	$1.06
228359	2	1.18	60	228363	3½	1.80
228360	3¼	2.38	100	228364	7¼	3.66
228361	5	4.40	200	228365	10¼	6.76
500 Volts Alternating Current						
254484	2½	1.25	30	254485	4¾	1.85
254490	3	1.55	60	254491	5¾	2.35
254496	4	3.10	100	254497	8½	4.65
254502	7	5.30	200	254503	15	7.90

250 Volts D. C. and A. C.

Three Pole Mfrs. No.	Three Pole Wt.Lb. Each	Three Pole Price Each	Amps. †	Four Pole Mfrs. No.	Four Pole Wt.Lb. Each	Four Pole Price Each
228366	3½	$1.60	30	228370	6¼	$2.12
228367	5½	2.70	60	228371	10½	3.60
228368	10¾	5.50	100	228372	18	7.30
228369	16½	10.14	200	228373	30	13.50
500 Volts Alternating Current						
228406	7	2.80	30	228410	13	3.70
228407	8¾	3.50	60	228411	16	4.80
228408	13	7.00	100	228412	25	9.30
228409	20	12.20	200	228413	40	16.20

DOUBLE THROW—FUSED AT BOTH ENDS

250 Volts D. C. and A. C.

Single Pole Mfrs. No.	Single Pole Wt.Lb. Each	Single Pole Price Each	Amps. †	Double Pole Mfrs. No.	Double Pole Wt.Lb. Each	Double Pole Price Each
228390	2½	$1.54	30	228394	4	$2.20
228391	4	2.38	60	228395	7½	3.40
228392	6½	5.18	100	228396	12½	7.40
228393	10	9.80	200	228397	16	13.00
500 Volts Alternating Current						
254488	5½	2.34	30	254489	8½	3.28
254494	6	2.92	60	254495	11	4.26
254500	8½	6.14	100	254501	16½	8.80
254506	14	10.08	200	254507	22	14.30

250 Volts D. C. and A. C.

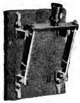
Three Pole Mfrs. No.	Three Pole Wt.Lb. Each	Three Pole Price Each	Amps. †	Four Pole Mfrs. No.	Four Pole Wt.Lb. Each	Four Pole Price Each
228398	6½	$3.52	30	228402	13½	$4.84
228399	13	5.44	60	228403	24	7.48
228400	18	11.84	100	228404	34	16.28
228401	32	20.80	200	228405	54	26.60
500 Volts Alternating Current						
228422	11	6.00	30	228426	20	8.00
228423	16	7.40	60	228427	30	9.80
228424	24	14.00	100	228428	45	18.60
228425	40	21.50	200	228429	75	28.60

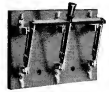
Plain finish. Satin finish, add 30 per cent. Polished finish, add 10 per cent to price of satin finish. Slate bases. Unmounted switches, deduct 10 per cent. Terminals included. Spade handles included for all four pole switches. Straight handles are included on all other switches.

†All ratings are D. C. or A. C. on either the 20 or 30 degree rise basis.

WESTINGHOUSE TYPE C SWITCHES

FRONT CONNECTED—PLAIN FINISH
With or Without Quick Break Attachments
600 VOLTS D. C. AND A. C.





SINGLE THROW—NOT FUSED

With Quick Break Attachments

Single Pole				Double Pole		
Mfrs. No.	Wt.Lb. Each	Price Each	Amps. †	Mfrs. No.	Wt.Lb. Each	Price Each
254440	2	$1.08	30	254441	4¼	$1.80
254420	2¼	1.20	60	254421	5¼	2.00
254428	3	2.16	100	254429	8	3.60
228433	5	4.20	200	228437	13	7.00
Without Quick Break Attachments						
228430	2	.80	30	228434	4¼	1.34
228431	2¼	.96	60	228435	5¼	1.60
228432	3	1.90	100	228436	8	3.16

With Quick Break Attachments

Three Pole				Four Pole		
Mfrs. No	Wt.Lb. Each	Price Each	Amps. †	Mfrs. No.	Wt.Lb. Each	Price Each
254442	6	$2.80	30	254443	9	$3.80
254422	7	3.10	60	254423	10	4.20
254430	13	5.60	100	254431	18	7.50
228441	24	10.86	200	254436	30	14.70
Without Quick Break Attachments						
228438	6	2.10	30	254438	9	2.80
228439	7	2.50	60	254408	10	3.30
228440	13	4.90	100	254410	18	6.60

DOUBLE THROW—NOT FUSED

With Quick Break Attachments

Single Pole				Double Pole		
Mfrs. No.	Wt.Lb. Each	Price Each	Amps. †	Mfrs. No.	Wt.Lb. Each	Price Each
254444	2¼	$2.50	30	254445	9	$3.88
254424	2¾	2.82	60	254425	10	4.44
254432	4	4.90	100	254433	13	7.20
228445	7½	8.64	200	228449	20	13.08
Without Quick Break Attachments						
228442	2¼	1.66	30	228446	9	2.20
228443	2¾	1.90	60	228447	10	2.60
228444	4	3.90	100	228448	13	5.20

With Quick Break Attachments

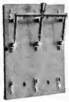
Three Pole				Four Pole		
Mfrs. No	Wt.Lb. Each	Price Each	Amps. †	Mfrs. No.	Wt.Lb. Each	Price Each
254446	14	$6.22	30	254447	18	$8.36
254426	15	7.06	60	254427	20	9.68
254434	23	11.60	100	254435	31	16.00
228453	35	20.97	200	254437	47	28.76
Without Quick Break Attachments						
228450	14	3.70	30	254439	18	5.00
228451	15	4.30	60	254409	20	6.00
228452	23	8.60	100	254411	31	12.00

For satin finish, add 30 per cent. Polished finish, add 10 per cent to price of satin finish. Slate bases. Unmounted switches, deduct 10 per cent. Terminals included. Spade handles included for all four pole switches. Straight handles are included on all other switches.

†All ratings are D. C. or A. C. on either the 20 or 30 degree rise basis.

WESTINGHOUSE TYPE C SWITCHES

FRONT CONNECTED—PLAIN FINISH
With or Without Quick Break Attachments
600 VOLTS D. C. AND A. C.



SINGLE THROW—FUSED AT BOTTOM

With Quick Break Attachments

Single Pole				Double Pole		
Mfrs. No.	Wt.Lb. Each	Price Each	Amps. †	Mfrs. No.	Wt.Lb. Each	Price Each
254599	2¾	$1.70	30	254600	7	$2.60
254611	3¼	1.96	60	254612	8	3.00
254623	7	3.60	100	254624	17	5.50
228457	15	6.50	200	228461	29	10.00
Without Quick Break Attachments						
228454	2¾	1.40	30	228458	7	2.20
228455	3¼	1.70	60	228459	8	2.60
228456	7	3.25	100	228460	17	5.00

With Quick Break Attachments

Three Pole				Four Pole		
Mfrs. No	Wt.Lb. Each	Price Each	Amps. †	Mfrs. No.	Wt.Lb. Each	Price Each
254601	13	$4.16	30	254602	18	$5.70
254613	14	4.80	60	254614	20	6.60
254625	28	8.80	100	254626	38	12.00
228465	43	10.00	200	254635	61	22.00
Without Quick Break Attachments						
228462	13	3.50	30	254578	18	5.70
228463	14	4.16	60	254581	20	6.60
228464	28	8.00	100	254584	38	12.00

DOUBLE THROW—FUSED AT BOTH ENDS

With Quick Break Attachments

Single Pole				Double Pole		
Mfrs. No.	Wt.Lb. Each	Price Each	Amps. †	Mfrs. No.	Wt.Lb. Each	Price Each
254607	8	$4.02	30	254608	13	$5.84
254619	8½	4.51	60	254620	14	6.52
254631	13	8.32	100	254632	27	11.64
228481	24	12.54	200	228485	46	19.38
Without Quick Break Attachments						
228478	8	3.30	30	228482	13	4.40
228479	8½	3.75	60	228483	14	5.00
228480	13	7.50	100	228484	27	10.00

With Quick Break Attachments

Three Pole				Four Pole		
Mfrs. No.	Wt Lb. Each	Price Each	Amps. †	Mfrs. No.	Wt Lb. Each	Price Each
254609	23	$9.42	30	254610	33	$12.88
254621	25	10.53	60	254622	35	14.54
254633	49	18.96	100	254634	66	26.28
228489	71	30.82	200	254637	98	39.76
Without Quick Break Attachments						
228486	23	7.26	30	254580	33	10.00
228487	25	8.25	60	254583	35	11.50
228488	49	16.50	100	254586	66	23.00

For satin finish, add 30 per cent. Polished finish, add 10 per cent to price of satin finish. Slate bases. Unmounted switches, deduct 10 per cent. Terminals included. Spade handles included for all four pole switches. Straight handles are included on all other switches.

†All ratings are D. C. or A. C. on either the 20 or 30 degree rise basis.

TRUMBULL TYPE C SWITCHES

250 Volts D. C. And 500 Volts A. C.

FRONT CONNECTIONS—NO FUSE

Single Throw—Plain Finish

No. 3001

No. 3041

Single Pole Mfrs. No.	Net Wt Ea., Lbs.	Price Each	Cap. Amp.	Double Pole Mfrs. No.	Net Wt. Ea., Lbs.	Price Each
3001	¾	$0.42	*30	3041	1¼	$0.68
3002	1½	.66	30	3042	2¾	1.06
3003	1½	.74	60	3043	3	1.22
3005	2½	1.50	100	3045	5½	2.50
3006	4	2.70	200	3046	10¼	4.50

No. 3081

No. 5901

Three Pole Mfrs. No.	Net Wt. Ea., Lbs.	Price Each	Cap. Amp.	Four Pole Mfrs. No.	Net Wt. Ea., Lbs.	Price Each
3081	2½	$1.02	*30	5901	4	$1.36
3082	4	1.60	30	5902	7¼	2.14
3083	4¼	1.84	60	5903	7½	2.44
3085	8	3.76	100	5905	12	5.00
3086	15½	6.76	200	5906	20	9.00

†Double Throw—Plain Finish

No. 3021

No. 3061

Single Pole Mfrs. No.	Net Wt. Ea., Lbs.	Price Each	Cap. Amp.	Double Pole Mfrs. No.	Net Wt. Ea., Lbs.	Price Each
3021	1¼	$0.76	*30	3061	3	$1.16
3022	2½	1.16	30	3062	5	1.70
3023	2½	1.30	60	3063	5¼	2.00
3025	4	2.94	100	3065	8½	4.50
3026	8	4.88	200	3066	16	7.50

No. 3101

No. 5921

Three Pole Mfrs. No.	Net Wt. Ea., Lbs.	Price Each	Cap. Amp.	Four Pole Mfrs. No.	Net Wt. Ea., Lbs.	Price Each
3101	4	$1.80	*30	5921	7	$2.56
3102	7¼	2.66	30	5922	12	3.84
3103	7½	3.10	60	5923	12½	4.40
3105	12	6.90	100	5925	18	9.80
3106	22	11.60	200	5926	28	15.50

*For 250 volts D. C. only.

†Double Throw Switches Type "C" are not made with Quick Break Attachments.

Unmounted Switches without slate bases, deduct 10 per cent.

125-Volt Spacings same price as 250-volt.

All Four Pole Switches regularly equipped with spade handles.

All Type "C" Switches are for Front Connections, Plain Finish only.

TRUMBULL TYPE C SWITCHES

250 Volts D. C. And A. C.

FRONT CONNECTIONS—FUSIBLE BOTTOM

High Jaws—N. E. C. Std.

Single Throw—Plain Finish

No. 1121

No. 1130

Single Pole Mfrs. No.	Net Wt. Ea., Lbs.	Price Each	Cap. Amp.	Double Pole Mfrs. No.	Net Wt. Ea., Lbs.	Price Each
1120	1	$0.70	30	1130	2¼	$1.06
1121	2½	1.18	60	1131	4	1.80
1123	5	2.38	100	1133	8¾	3.66
1124	7½	4.40	200	1134	16	6.76

No. 1141

No. 1151

Three Pole Mfrs. No.	Net Wt. Ea., Lbs.	Price Each	Cap. Amp.	Four Pole Mfrs. No.	Net Wt. Ea., Lbs.	Price Each
1140	3½	$1.60	30	1150	6½	$2.12
1141	6	2.70	60	1151	10½	3.60
1143	13½	5.50	100	1153	20	7.30
1144	24	10.14	200	1154	36	13.50

FRONT CONNECTIONS—FUSIBLE

N. E. C. Std.

†Double Throw—Plain Finish

No. 3131

No. 3151

Single Pole Mfrs. No.	Net Wt. Ea., Lbs.	Price Each	Cap. Amp.	Double Pole Mfrs. No.	Net Wt. Ea., Lbs.	Price Each
3131	3	$1.54	30	3151	5	$2.20
3132	5	2.38	60	3152	7¾	3.40
3134	8	5.18	100	3154	17	7.40
3135	11½	9.80	200	3155	24	13.00

No. 3172

No. 3192

Three Pole Mfrs. No.	Net Wt Ea., Lbs.	Price Each	Cap. Amp.	Four Pole Mfrs. No.	Net Wt Ea., Lbs.	Price Each
3171	6	$3.52	30	3191	11	$4.84
3172	12	5.44	60	3192	18½	7.48
3174	26	11.84	100	3194	41½	16.28
3175	41	20.80	200	3195	59½	26.60

†Double Throw Switches Type "C" are not made with Quick Break Attachments.

Unmounted switches, without slate bases, deduct 10 per cent.

Double Throw Fusible Switches regularly furnished with High Front Posts and Low Hinge Posts.

All Four Pole Switches regularly equipped with spade handles.

All Type "C" switches are for Front Connections, Plain Finish only.

No Fuses included in above prices.

TRUMBULL TYPE C SWITCHES

500 Volts A. C.

FRONT CONNECTIONS—FUSIBLE BOTTOM

High Jaws

Single Throw—Plain Finish

No. 9880

No. 9900

Three Pole Mfrs. No	Net Wt. Ea., Lbs.	Price Each	Cap. Amp.	Four Pole Mfrs. No.	Net Wt. Ea., Lbs.	Price Each
9880	7¼	**$2.80**	30	**9900**	11	**$3.70**
9881	8¼	**3.50**	60	**9901**	18	**4.80**
9883	16	**7.00**	100	**9903**	27	**9.30**
9884	24½	**12.20**	200	**9904**	43	**16.20**

FUSIBLE

***Double Throw—Plain Finish**

No. 9851

No. 9870

Three Pole Mfrs. No.	Net Wt. Ea., Lbs.	Price Each	Cap. Amp.	Four Pole Mfrs. No	Net Wt. Ea., Lbs.	Price Each
9850	9	**$6.00**	30	**9870**	21	**$8.00**
9851	14	**7.40**	60	**9871**	32	**9.80**
9853	26	**14.00**	100	**9873**	58	**18.60**
9854	42	**21.50**	200	**9874**	72	**28.60**

*Double Throw Fusible Switches regularly furnished with High Front Posts and Low Hinge Posts. Not made with Quick Break Attachments.

Unmounted Switches, without Slate Bases, deduct 10%.

All Fusible 500 Volt A. C. Switches arranged for 600 volt fuses.

All Four Pole Switches regularly equipped with Spade handles.

No fuses included in above prices.

KAPPA SWITCHES

FRONT CONNECTIONS—30 Amp., 250 Volts

Single Throw—Plain Finish

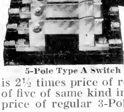
No. 22

No. 30

No Fuse Mfrs. No.	Style	Net Wt. Ea., Lb.	Price Each	Fusible—High Jaws Mfrs. No	Style	Net Wt Ea. Lb	Price Each
20	S. P.	¾	**$0.38**	**29**	S. P.	1	**$0.64**
22	D. P.	1	**.60**	**30**	D. P.	1¾	**.97**
23	T. P.	2	**.90**	**31**	T. P.	3¾	**1.45**

These Slate Base Switches are for comparatively light work. Made in one size only, 30 Amp., 250 Volts. Blades and posts are of copper (posts "bent up"). Foot blocks and "Binding" screws of brass. Hinge rivet spun over to prevent loosening. Unmounted Switches, without Slate Bases, deduct 10%. No Fuses included in above prices.

FIVE AND SIX-POLE TYPES A AND C SWITCHES



5-Pole Type A Switch

The price of 5-Pole Types A and C Switches is 2⅛ times price of regular 3-Pole Switch. In lots of five of same kind in one order price is twice price of regular 3-Pole Switch.

The price of 6-Pole Types A or C Switches is 2½ times price of regular 3-Pole Switch. In lots of five of same kind in one order price is 2¼ times price of regular 3-Pole Switch.

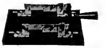
TRUMBULL QUICK BREAK ATTACHMENTS

For Types A and C Switches

For price of switches with quick break attachments, add list of attachments required to list of regular Switch.

FOR TYPE A SWITCHES

250 V. D. C.—500 V. A. C.



Type A Switch
With Quick Break Attachments

Single Throw Plain Finish	Single Throw Polished Finish	Amp. Cap.	Double Throw Plain Finish	Double Throw Polished Finish
$0.36	**$0.48**	30	**$0.72**	**$0.96**
.38	**.50**	60	**.76**	**1.00**
.40	**.56**	100	**.82**	**1.10**
.46	**.68**	200	**.94**	**1.36**
.64	**.88**	300	**1.28**	**1.76**
.80	**1.12**	400	**1.60**	**2.24**
.92	**1.28**	600	**1.84**	**2.56**

FOR TYPE C SWITCHES

250 V. D. C.—500 V. A. C.

(For Double Throw Use Type A Switches)

Type C Switch
With Quick Break Attachments

Single Throw

Amp. Cap.	Finish	Price Each	Amp. Cap.	Finish	Price Each
30	Plain	**$0.42**	100	Plain	**$0.50**
60	Plain	**.46**	200	Plain	**.56**

125 Volt Switches cannot be equipped with Quick Break attachments.

Multiple Blades and Multiple Fuse Clips regularly furnished on switches 800 Amp., and above. Switches can be made with single blades 800-1200 Amp. and equipped with Quick Break attachments at an additional charge.

Note—Prices listed above are for individual attachments. A Double Pole Switch requires two attachments, a Three Pole requires three and a Four Pole four attachments.

The National Code requires that switches designed for over 250 Volts D. C. be provided with quick break attachments above 100 Amp. and recommends them on 100 Amp. and below.

SLATE BARRIERS

TO REDUCE SPACINGS FOR SWITCHES USED IN BOXES

For 600 Volt Switches—Single Throw

Amp. Cap.	No Fuse Switch	For N. E. C. Standard Fusible Switch: Fusible Bottom	Fusible Top
30	**$0.34**	**$0.54**	**$0.54**
60	**.34**	**.54**	**.60**
100	**.36**	**.54**	**.66**
200	**.36**	**.54**	**.66**
300	**.36**	....	....

Above lists are for each barrier. To equip a three-pole switch, two barriers are required; a four-pole switch, three barriers, etc.

WESTINGHOUSE METER SERVICE SWITCHES

TYPE WK-54—STANDARD TYPE

Arranged for Two Branch Circuits

Type WK-54 Switch without Meter but with Meter Trim

Westinghouse type WK-54 meter service switches and standardized meter service devices meet the demand of central stations and power companies for an inexpensive meter switch which will permit of testing the subscriber's meter without interrupting his service.

To mount switches in banks, troughs with covers can be furnished in standard lengths. In the lower part of each switch side wall there is a U-shaped slide, held in place by a grounding screw. This slide may be removed and replaced at will on all switches of 30-ampere capacity. These U-slides provide openings for wiring troughs when meters are banked, or for fuse cut-out blocks for branch circuits. The switches are also equipped with knockouts for conduit which may be used in banking.

An inside locking device enables lighting companies to lock the switch handle in the on or off position, disconnecting or locking the service without removing the meter.

Twin fuse receptacles may be mounted in the side wall to provide branch fuses, externally accessible to the customer.

Cabinets are made of No. 16 gauge steel. The cover is held in place with a meter seal, which prevents theft of current and at the same time rigidly holds the box in locked assembly. Different makes of meters require different trims. Therefore the standard switch will be packed complete without the meter trim which must be ordered separately as required to fit the meters. Both ends of the cabinets are interchangeable, making it possible to use it with either top or bottom connected meters. Blank ends and meter trims are interchangeable with ends and trims of standardized cabinets of similar ratings and capacity. The cabinet is provided with a varied assortment of knockouts.

WK-54-METER SERVICE SWITCHES

The numbers and list prices of these switches do not include fuses, meter trims, end walls, banking troughs, etc. End walls, meter trims, etc., are listed separately.

Without End Walls—With Testing Facilities

Mfrs. No.	Amps.	Volts	Service Wires	Arrangement	Std. Pkg.	Shpg. Wt.Lb.	Price Each
K-60224	30	125	2	1 Plug Fuse, 2 Switch Blades, 1 Solid Connection	10	10	$5.10
K-59441	30	125	2	2 Plug Fuses, 2 Switch Blades	10	10	5.10
K-59442	30	125–250	3	2 Plug Fuses, 3 Switch Blades	10	10	5.85
K-60225	30	125–250	3	2 Plug Fuses, 2 Switch Blades, 1 Disconnect Blade	10	10	5.85
K-59443	30	125–250	3	2 Plug Fuses, 2 Switch Blades, 1 Disconnect Strap	10	10	5.85
K-60226	30	125	2	1 N. E. C. Fuse, 2 Switch Blades, 1 Solid Connection	10	10	5.10
K-59447	30	250	2	2 N. E. C. Fuses, 2 Switch Blades	10	10	5.10
K-59448	30	125–250	3	2 N. E. C. Fuses, 3 Switch Blades	10	10	5.85
K-60227	30	125–250	3	2 N. E. C. Fuses, 2 Switch Blades, 1 Disconnect Blade	10	10	5.85
K-59449	30	125–250	3	2 N. E. C. Fuses, 2 Switch Blades, 1 Disconnect Strap	10	10	5.85
K-60228	60	125	2	1 N. E. C. Fuse, 2 Switch Blades, 1 Solid Connection	5	16	12.10
K-59461	60	250	2	2 N. E. C. Fuses, 2 Switch Blades	5	16	12.10
K-59462	60	125–250	3	2 N. E. C. Fuses, 3 Switch Blades	5	16	13.30
K-60229	60	125–250	3	2 N. E. C. Fuses, 2 Switch Blades, 1 Disconnect Blade	5	16	13.30
K-60230	60	125–250	3	2 N. E. C. Fuses, 2 Switch Blades, 1 Link	5	16	13.30
K-60231	100	125	2	1 N. E. C. Fuse, 2 Switch Blades, 1 Solid Connection	2	28	19.80
K-59463	100	250	2	2 N. E. C. Fuses, 2 Switch Blades	2	28	19.80
K-59464	100	125–250	3	2 N. E. C. Fuses, 3 Switch Blades	2	28	21.80
K-60232	100	125–250	3	2 N. E. C. Fuses, 2 Switch Blades, 1 Disconnect Blade	2	28	21.80
K-60233	100	125–250	3	2 N. E. C. Fuses, 2 Switch Blades, 1 Link	2	28	21.80

FOR THREE PHASE (3 WIRE) INSTALLATIONS

250 Volts, 30, 60, 100 Amperes
All Legs Fused—Test Blades

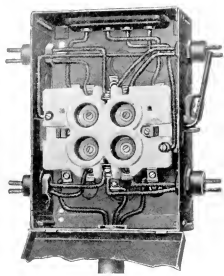
Amps.	Poles	Fuse and Switch	Test Blades	Mfrs. No. Switch	Mfrs. No. End Wall	Std. Pkg.	Price Each	Total
30	3	3 N. E. C. Fuses on Switch Blades	2	K-60266	K-50769	10	$10.20 .55	$10.75
60	3	3 N. E. C. Fuses on Switch Blades	2	K-60267	K-57070	5	20.55 1.10	21.65
100	3	3 N. E. C. Fuses on Switch Blades	2	K-60268	K-57071	2	26.95 1.30	28.25

WESTINGHOUSE METER SERVICE SWITCHES

TYPE WK-57—STANDARDIZED

For Single Phase and Direct Current Service
125 Volts 2 Wire and 125-250 Volts 3 Wire
30 Amperes with Testing Facilities

Type WK-57, Inclosed Position



Designed to meet the requirements of central stations and power companies and embodies the principle of safety, convenience and economy. It combines in one enclosed unit all the functions of a service entrance switch and cutout block with facilities for meter connections and testing, and complete enclosure of all elements of the service entrance installation. It embodies everything that may be had with a standardized meter service switch, namely, external operation which prevents theft of current, service cutout, meter connection block, lock off for service suspension, meter testing device and other features, making it a switch which is ideal for central stations, consumer and contractors use.

Operation—Construction

The switch is externally operated by means of a conveniently located operating handle, there being no possibility of contact with live parts as they are enclosed in the steel cabinet and cannot be reached by the customer. The handle is on the right hand side and may be locked "on" or "off" on the outside of the cabinet, by seal or padlock, through the medium of the "on" and "off" stop projections secured on the side wall of the cabinet.

Made in the 30 ampere size and for plug fuses only. There are several arrangements providing the different main and branch circuit combinations, including two or three wire branch circuits. Some of the arrangements provide for up to two branch circuits, single-fused or double-fused, others provide for up to four branch circuits, single-fused.

The cabinet is constructed in accordance with the standardized 30 ampere dimensions, and takes standardized 30 ampere end walls. It is fitted with a flat main cover, hinged to the cover hinging end wall, located at the lower end of the cabinet. On the outside of the main cover is an auxiliary cover which encloses the branch or load side fuses.

The porcelain base on which the switch and fuse parts are mounted is supported on brackets projecting from each side wall of the cabinet, the main switch being fastened on the rear face of this base. The main fuses which are connected on the service side of the meter are on the upper edge of the base. The branch or load side fuses are on the front face of the base. When the main cover of the cabinet is closed these fuses project through the opening in the main cover, which fits closely around the fuse receptacles so as to make it impossible to fish through into the cabinet from the outside, when the main cover is sealed. Consequently, though the fuses connected to the service-side of the meter are sealed and accessible only to authorized persons, the load side fuses are at all times accessible to the customer.

This switch embodies all the features of standardization, so far as concerns the meter, protective and other end walls and accessories, such parts being interchangeable with those of other leading manufacturers.

For 60 and 100 ampere capacities the type WK-54 standardized switch is recommended.

	Service Arrangement			Branch Arrangement			Price	Price
Mfrs. No. Switch	No. of Poles	No. of Blades	No. of Fuses	No. of Circuits	No. of Fuses	Fuses in Each Cir.	Solid or Shutter Type End Wall	Switch Without End Wall
K-57924	2	1	1	2	2	1	**$0.40**	**$6.60**
K-57925	2	1	1	4	4	1	**.40**	**8.60**
K-57931	3	2	2	2	4	2	**.40**	**8.60**
K-57926	2 or 3	2	2	1 or 2	1 or 2	1 or 2	**.40**	**6.60**
K-57928	2 or 3	2	2	2 or 4	2 or 4	1 or 2	**.40**	**8.60**

Standard package quantity, 10. Approximate shipping weight each switch, 10 pounds.

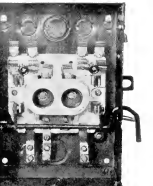
WESTINGHOUSE METER SERVICE SWITCHES

TYPE WK-64—SAFE LOCK

For Single Phase and Direct Current Service
125 Volts 2 Wire and 125-250 Volts 3 Wire
30 Amperes with Testing Facilities

Safe Lock Switch with Sliding Fuse Compartment Shutter Closed

Safe Lock Switch with Sliding Fuse Compartment Shutter Open



Safe Lock Switch Style K-64003 With Main Cover Off

The Safe Lock meter service switch constructed in the standardized 30 ampere dimensions, embodies two new and important features. First and most important both to the central station and the public, the switch is absolutely tamper-proof, making theft of current impossible. Second, the switch is so constructed that the customer may renew the fuses in perfect safety. The new and improved switch, the type WK-64, has been so designed as to eliminate all the defects which have appeared in switches designed to meet these requirements in the past.

The main cover is hinged at the lower end of the cabinet and is equipped with a sealing slot in the upper right hand side, for wire or strap seals, making theft of current, without knowledge of the central station, impossible.

The face of this main cover contains a horizontal sliding steel shutter, through which the service fuses are accessible to the customer. However, this steel shutter is controlled by an inter-locking device on the externally operated service control handle which makes it possible to open this fuse compartment only when the control handle is in the off position and prevents closing the switch when the fuse enclosure is open.

The connection arrangement places the main switch ahead of the main fuses, assuring the customer positive protection while replacing fuses.

Other features are the lock off and lock on brackets on the outside, a ground lug, U shaped slides for banking, and a convenient number of combination knockouts for conduit bushings in the sides, back, and bottom of the cabinet.

The use of class A service switches with service side fuses accessible to the consumer is desirable on account of maintenance in cities and towns where central station service departments are not available and where cost of maintenance service is prohibitive.

There are six styles of the type WK-64 switch of the 30 ampere capacity; two 2-wire single fused switches, two 2-wire double fused switches and two 3-wire switches. Three are equipped with test facilities and three are not.

The meter testing type is arranged with corrugated test clips and test blades, permitting the test of meters without interruption of the consumer's service.

The staggered bussing straps prove ready means for line and banking connections. A ground connection and disconnecting link are provided in the neutral leg.

The three styles listed without test facilities meet the demand where this feature is not essential. They are of the same general construction as those with test facilities but are minus the test blades and clips.

Mfrs. No.	Volts	Service Wire	Arranged For	*Price Each
K-64000*	125	2	2 Plug Fuses 2 Switch Blades 2 Plug Fuses	$6.60
K-64001*	125–250	3	2 Switch Blades Sol. Neut. with Link 2 Plug Fuses	6.60
K-64002	125	2	2 Switch Blades 1 Test Blade 2 Plug Fuses	6.85
K-64003	125–250	3	2 Switch Blades Sol. Neut. with Link 2 Test Blades	6.85
K-64004*	125	2	1 Plug Fuse 1 Switch Blade Sol. Neut. with Link 1 Plug Fuse	6.60
K-64005	125	2	1 Switch Blade Sol. Neut. with Link 1 Test Blade	6.85

*Not equipped with test facilities.

Standard package, 10. Approximate shipping weight each switch, 10 pounds.

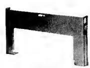
End walls and meter trims (adapters) same as WK-54, which are not included in switch number or price.

WESTINGHOUSE METER SERVICE SWITCHES

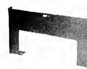
ACCESSORIES FOR TYPES WK-54, WK-57 AND WK-64 METER SERVICE SWITCHES

METER TRIMS

K-55270



K-55272



K-55273

For 30 Ampere Switches—2 or 3 Wire

Mfrs. No.	Amps.	For Type of Meter	Price Each
K- 55270	5– 10	Westinghouse OA, without Terminal Cover	**$0.40**
K- 57221	5– 10	Westinghouse OA, with Terminal Cover	**.40**
K- 55271	15– 75	Westinghouse OA, without Terminal Cover	**.40**
K- 55272	5– 25	General Electric I-14	**.40**
K- 55273	5– 15	Sangamo H-2 (New Model)	**.40**
K- 59330	5– 25	Duncan M-2	**.40**

Standard package, 10 per carton.

For 60 Ampere Switches—2 or 3 Wire

K-57165*	15– 75	Westinghouse OA	**.90**
K-57166*	30– 75	General Electric I-14	**.90**
K-57167*	25–100	Sangamo H-2 (New Model)	**.90**
K-60335*	5– 25	General Electric I-14	**.90**

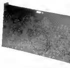
Standard package, 5 per carton.

For 100 Ampere Switches—2 or 3 Wire

K-57171*	15– 75	Westinghouse OA	**1.10**
K-57172*	30– 75	General Electric I-14	**1.10**
K-57173*	25–100	Sangamo H-2 (New Model)	**1.10**

Standard package, 2 per carton.

BLANK END WALLS



No. K-57047

For 30 Ampere Switches—2 or 3 Wire

Mfrs. No	No of Knockouts	Std Pkg.	Price Each
K-55269	Two ½, One Comb. ½x¾ Inches	10	**$0.40**
K-57047	Two ¾, One Combination 1x1¼ Inches	10	**.40**

For 60 Ampere Switches—2 or 3 Wire

K-56950*	Four Comb. ¾x1 Inches	5	**.90**
K-57066*	One 1 Inch, One Combination 1¼x1½ Inches	5	**.90**

For 100 Ampere Switches—2 or 3 Wire

K-56952*	Four Comb. ¾x1 Inch	2	**1.10**
K-57067*	One Comb. 1x1½ Inches, One Comb. 2x2½ Inches	2	**1.10**

*For type WK-54 meter service switches only.

WESTINGHOUSE METER SERVICE SWITCHES

ACCESSORIES FOR TYPES WK-54, WK-57 AND WK-64 METER SERVICE SWITCHES

STEEL AND MICARTA SHUTTER TRIMS

Shutter Type End Wall

Mfrs. No.	Description	Price Each
K-59431	Shutter End Wall with Blank Steel Plate (K-60181) for closing Cabinet End used in connection with Steel and Insulating Shutter Trims listed below	**$0.40**

Steel Shutter Trims for End Wall K-59431 Terminal Chamber Equipment with Cover

Mfrs. No.	Make of Meter	Type of Meter	Cap. of Meters	Price Each
K-60827	Sangamo	H-2	25–100	**$0.20**
K-60828	G. E.	I-14	5– 25	**.20**
K-60829	West.	O. A.	0– 10	**.20**
			60 Cy.	
K-60830	West.	O. A.	15– 75	**.20**
			25–30 Cy.	
K-60830	West.	O. A.	0– 75	**.20**
K-60831	Sangamo	H-2 (New)	5– 15	**.20**
K-60832	Duncan	M-2	5– 25	**.20**
K-60833	Sangamo	H (Old)	5– 15	**.20**

Insulating Shutter Trims (Micarta) For End Wall K-59431

K-59432	Sangamo	H-2	25–100	**.35**
K-59433	G. E.	I-14	5– 25	**.35**
K-59434	West.	O. A.	0– 10	**.35**
			60 Cy.	
K-59435	West.	O. A.	15– 75	**.35**
			25–30 Cy.	
K-59435	West.	O. A.	0– 75	**.35**
K-59436	Sangamo	H-2 (New)	5– 15	**.35**
K-59437	Duncan	M-2	5– 25	**.35**
K-59438	Sangamo	H (Old)	5– 15	**.35**
K-59440	All Makes. To Insulate Meter Term. Chamb. from back of Cabinet			**.35**
K-60214	All Makes. Inner Slide to Connect K-59431 to Meter Adapter			**.35**
K-60215	All Makes. Outside Separator to Insulate Adapter from Cabinet			**.60**

TROUGHS AND COVERS

For Banking 30 Ampere Cabinets

Mfrs. No.	Lgth. In.	Std.Pkg. Quantity	Price Each
K-55275	4⅛	10	**$0.50**
K-55276	2½	10	**.40**
K-57178	6	10	**.60**
K-57179	8	10	**.75**
K-60314	9	10	**.90**
K-60315	10	10	**1.00**

TROUGH ADAPTING SLIDES

Mfrs. No.	Description	Std. Pkg.	Price Each
K-60278	For 31- 60 Amp. Switches	5	**$1.15**
K-60279	For 61-100 Amp. Switches	2	**1.15**

U SLIDES

For 30 Ampere Cabinets

Mfrs. No	Description	Std. Pkg.	Price Each
K-55244	One 1¼ In. K.O.	10	**$0.40**
K-55567	1 Comb. ¾x1 In.	10	**.40**

DISTRIBUTION CUTOUT BLOCK

Mfrs. No.	Description	Std. Pkg	Price Each
K-57252	For Customer's Circuit	10	**$1.40**

TRUMBULL CIRCLE T UNIVERSAL SERVICE SWITCHES

STANDARDIZED

For Single Phase and Direct Current Service

30 Amperes—For Plug Fuses Only—125 Volts

Including in One Unit, Service Switch with Cutouts, also Cutouts for One, Two or Four Branch Circuits

Universal Service Switch, Closed

These Universal Service Switches represent a further development in the Standardized type of Meter Service Switches.

They provide everything furnished in the Meter Service Switch line with the following additional features:

a. Service Switch and from one to four branch circuits combined on one porcelain base.
b. Enclosing in one cabinet all Branch Circuit Wire Connections.
c. Convenient and safe access to Branch Circuit Fuses.

Auxiliary Cover Open Showing Appearance of Nos. 977-123, 966-123, 971-123, 973-333, 974-333

The boxes used with these Universal Service Switches are exactly the same as those used with the Meter Service Switch lines—as to size, knockouts, twistouts for wiring troughs. The same end wall and all standardized accessories such as troughs, padlock attachments, etc., can be used with these Universal Service Switches.

With Meter Auxiliary Cover Open Showing Appearance of Nos. 977-123, 966-123, 971-123, 973-333, 974-333

CONSTRUCTION

Made in 30 Amperes, for Plug Fuses only.

Made in 10 different types.

Provided for 2 or 3 wire Main Circuits with 2 or 3 wire Branch Circuits. The Branch Circuits range from 2 single fused or one double fused, to four circuits single fused or two circuits double fused.

Boxes take regular Standardized 30 Amp. End Walls.

Double covers are used. The main cover is flat, hinged at bottom. In center of main cover is an auxiliary cover which opens onto branch fuses.

Handle can be locked "on" or "off" by seal or by padlock.

Porcelain base on which Switch and Fuse parts are mounted is supported on brackets projecting from each side wall of the box.

The Main Switch is on the rear face of this base.

The Main Fuses (connected on the service side of meter) are on the upper edge of the base.

The branch or load side Fuses are on the front face of the base.

When the main cover is closed, these branch Fuses project through an opening in the cover over which is hinged the auxiliary cover.

The main cover fits closely around the fuse receptacles so as to make it absolutely impossible to fish through into the cabinet from outside when main cover is closed.

Consequently although the Fuses connected to the Service side of the meter are sealed and accessible only to authorized persons, the load side Branch Circuit Fuses are at all times accessible to the consumer.

End Walls and all accessories are interchangeable with those made by any manufacturer of Universal Service Switch Cabinets.

Rear View of No. 971-123 Showing Switch and Straps

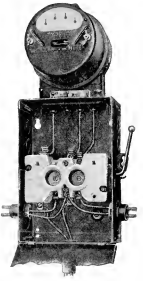
TRUMBULL CIRCLE T UNIVERSAL SERVICE SWITCHES

STANDARDIZED

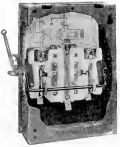
For Single Phase and Direct Current Service

30 Amperes—For Plug Fuses Only

Including in One Unit, Service Switch with Cutouts, also Cutouts for One, Two or Four Branch Circuits



Nos. 971-123
With Both Covers Open
Showing Wiring



Rear View of No. 975-333
Showing Switch and Straps

CONNECTIONS AND CIRCUITS

The latest modifications of the National Electrical Code requirements as to the omission of the Fuse and Switch element in the neutral of the Service Switch (2 or 3 wire) and the need, (under proper grounding conditions) of fusing only in the ungrounded leg of Branch Circuits (2 or 3 wire) were given careful consideration in the design, construction and connection arrangement of the Circle T Universal Service Switch.

The five different types in which these Switches are made, also, provide for either double fusing and switching in the main or double fusing in the Branch Circuits.

The Main Switch is placed ahead of the Main Service-side Fuses and both Main Service-side Fuses and Main Switch are ahead of the meter.

Consequently, the Main Switch controls the Main Fuses, the Meter, the Branch Fuses and all connected circuits.

The Load-side Branch Circuit Fuses are connected after the meter.

The Load-side Branch Circuit Fuses are always accessible to the consumer.

The Main Service-side Fuses are accessible only to authorized persons.

Any Fuses (main or branch circuit) may be renewed without coming in contact with any live parts.

The arrangements of the terminals simplifies the wiring.

The lower edge of the base has all the service side connections, while the upper edge of the base has all the meter connections.

Auxiliary Cover Open
Showing Appearance of
Nos. 875-123, 970-333,
975-333

The Load-side Branch Circuit Connections may be either all at one edge or both edges, depending upon the fusing arrangement and number of the branch circuits in the particular device.

There is ample room for making all connections and running bussing wires through the cabinet.

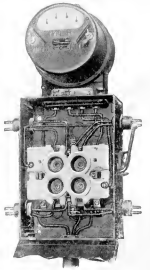
Suitable testing contacts are provided at the Service and Load-side Meter Connections and at the Load-side Circuit Connections.

The Branch Load-side Fuses, in addition to serving as fuses for the branch circuits also serve as means for opening the load-side of the meter when testing. When so testing, a by-pass with the usual testing clips is connected across from the Service-side Main Fused Switch to the load circuit connection of the Load-side Branch Fuses.

After a by-pass has been placed, the Load-side Fuses are partially unscrewed or removed and thereby free the Load-side Terminals of the meter coil for testing purposes.

The Circle T Service Switch combines in one single and compact unit all the functions needed for a complete service connection and branch distribution. There is but one device to install.

Mfrs. No.	Connections: Main Switch Fused Circ		Main Fused	Branch Circ		Branch Fused	Price Each: Without End Wall	Price Each: *With End Wall
973-333	30	2	1 Fuse or	1 or	2	2 Fuses	**$6.60**	**$7.00**
(Can be wired to get these four Combinations		2	2 Fuses or	1 or	2	2 Fuses	(See Diagram)	
		3	2 Fuses or	1 or	3	2 Fuses		
		3	2 Fuses	2	2	1 Fuse		
971-123	30	2	1 Fuse		2	1 Fuse	**6.60**	**7.00**
972-123	30	2	1 Fuse	2	2	1 Fuse	**8.60**	**9.00**
979-333	30	3	2 Fuses	4	2	2 Fuses	**8.60**	**9.00**
975-333	30	2	Sld. Neut. 1 Fuse	2	2	2 Fuses		
(Can be wired to get these three Combinations		2	or 2 Fuses	2 or	2	2 Fuses	**8.60** (See Diagram)	**9.00**
		3	or 2 Fuses or	2	2	1 Fuse		
			Sld. Neut.	4	2			



Nos. 975-333
With Both Covers Open
Showing Wiring

Standard package, 10.

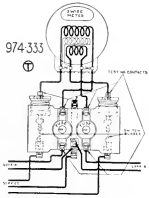
Dimensions and knockouts same as 30 ampere switch on preceding page.

*Shutter end walls and blank shutters are regularly furnished as a unit with switch and box. One-piece end walls packed separately.

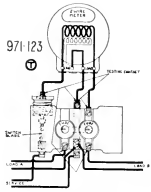
TRUMBULL CIRCLE T UNIVERSAL SERVICE SWITCHES
STANDARDIZED

For Single Phase and Direct Current Service
30 Amperes—For Plug Fuses Only

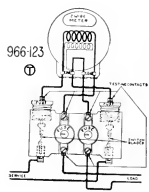
WIRING DIAGRAMS



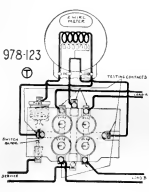
No. 974-333
3 Wire Main—Solid Neutral
2 Wire Double Branch—Solid Neutral



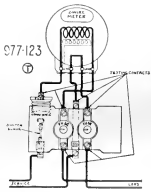
No. 971-123
2 Wire Main—Solid Neutral
2 Wire Double Branch—Solid Neutral



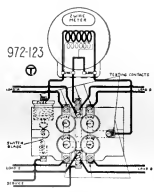
No. 966-123
2 Wire Main—Fused Neutral
Single 2 Wire Branch—Fused Neutral



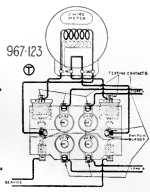
No. 978-123
2 Wire Main—Solid Neutral
2 Wire Double Branch—
Fused Neutral



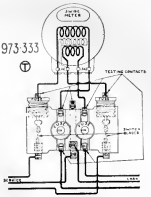
No. 977-123
2 Wire Main—Solid Neutral
2 Wire Single Branch
Fused Neutral



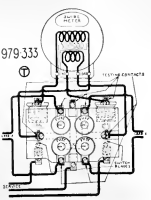
No. 972-123
2 Wire Main—Solid Neutral
2 Wire 4 Branch—
Solid Neutral



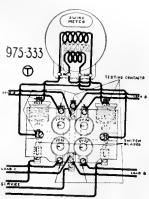
No. 967-123
2 Wire Main—Fused Neutral
2 Wire Double Branch—
Fused Neutral



No. 973-333
3 Wire Main—Solid Neutral
3 Wire Single Branch—Solid Neutral



No. 979-333
3 Wire Main—Solid Neutral
2 Wire Double Branch—Fused Neutral

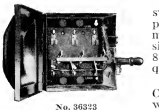


No. 975-333
3 Wire Main—Solid Neutral
2 Wire 4 Branch—Solid Neutral

TRUMBULL SAFETY SWITCHES

TYPE A—QUICK MAKE AND QUICK BREAK

Single Throw—No Fuse



No. 36323

All single throw switches, 30-600 amperes inclusive, quick make and quick break; single throw switches 800 amperes and above, quick break only.

250 Volt, 500 Volt A. C. switches furnished with Snuf-Arc barriers at 600 volt prices.

Weights given are for one switch in corrugated paper box packed for shipping. Knockouts in ends, sides and rear. Main feeder conduit holes placed for 50 cents each list. Multiple terminal lugs regularly furnished on switches 600 amperes and above.

All single throw switches 800 amperes and above, are in boxes having flat instead of panel covers.

30 Ampere, 500 Volt A. C. switches made of 60 ampere stock.

250 Volt D. C. and 500 Volt A. C.

Mfrs. No.	Amp.	Pole	Volt	Wt. Ea. Lbs. Packed	Price Each
36221	30	2	250	11½	**$8.00**
36321	30	3	250	13½	**9.60**
36421	30	4	250	16½	**14.00**
36251	30	2	500 A. C.	14½	**10.00**
36351	30	3	500 A. C.	18½	**12.00**
36451	30	4	500 A. C.	24½	**15.50**
36222	60	2	250–500	14½	**10.00**
36322	60	3	250–500	18½	**12.40**
36422	60	4	250–500	24½	**15.50**
36223	100	2	250–500	24	**16.00**
36323	100	3	250–500	29	**18.50**
36423	100	4	250–500	37	**22.50**
36224	200	2	250–500	35	**21.60**
36324	200	3	250–500	45	**26.40**
36424	200	4	250–500	55	**35.00**
36225	400	2	250–500	71	**44.50**
36325	400	3	250–500	92	**54.00**
36425	400	4	250–500	112	**82.00**
36226	600	2	250–500	92	**64.00**
36326	600	3	250–500	122	**77.00**
36426	600	4	250–500	152	**112.00**

QUICK BREAK ONLY

30227	800	2	250–500	140	**127.00**
30327	800	3	250–500	180	**161.00**
30427	800	4	250–500	220	**195.00**
30228	1000	2	250–500	180	**155.00**
30228	1200	2	250–500	180	**155.00**
30328	1000	3	250–500	240	**211.00**
30328	1200	3	250–500	240	**211.00**
30428	1000	4	250–500	300	**279.00**
30428	1200	4	250–500	300	**279.00**

TRUMBULL SAFETY SWITCHES

TYPE A—QUICK BREAK

Double Throw—No Fuse

No. 35322

All double throw switches are quick break only. 250 Volt, 500 Volt A. C. switches furnished with Snuf-Arc barriers at 600 volt prices.

Weights given are for one switch in corrugated box packed for shipping. Knockouts in ends, sides and rear. Main feeder conduit holes placed for 50 cents each list.

Double throw switches are self-centering. A plunger operating from spring in the handle hub, rests in a hole in the box when switch is in off position, thus neutralizing gravity.

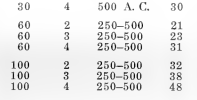
Multiple terminal lugs regularly furnished on switches 600 amperes and above.

All double throw switches 200 Amperes and above, are in boxes having flat instead of panel covers.

30 Ampere, 500 Volt A. C. switches made of 60 ampere stock.

250 Volt D. C. and 500 Volt A. C.

Mfrs. No.	Amp.	Pole	Volt	Wt. Ea. Lbs. Packed	Price Each
35221	30	2	250	14	**$11.00**
35321	30	3	250	17	**13.50**
35421	30	4	250	19	**19.00**
35251	30	2	500 A. C.	18	**12.50**
35351	30	3	500 A. C.	20	**15.50**
35451	30	4	500 A. C.	30	**23.00**
35222	60	2	250–500	21	**13.00**
35322	60	3	250–500	23	**16.00**
35422	60	4	250–500	31	**22.50**
35223	100	2	250–500	32	**22.50**
35323	100	3	250–500	38	**28.50**
35423	100	4	250–500	48	**51.00**
35224	200	2	250–500	45	**31.50**
35324	200	3	250–500	73	**47.00**
35424	200	4	250–500	100	**68.50**
35225	400	2	250–500	120	**92.00**
35325	400	3	250–500	151	**123.50**
35425	400	4	250–500	180	**164.50**
35226	600	2	250–500	160	**130.00**
35326	600	3	250–500	200	**173.00**
35426	600	4	250–500	240	**202.50**



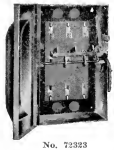
Sample of Carton

Switches, up to 200 Amp. 4 P. fused inclusive are packed in individual corrugated paper cartons fully labeled and ready for immediate reshipment by the Distributor or Dealer; larger sizes packed in wooden cases. Porcelain Base Switches packed in cartons of 10.

TRUMBULL SAFETY SWITCHES

TYPE A—QUICK MAKE AND QUICK BREAK

Single Throw—Fusible Bottom—For N. E. C. Cartridge Fuses



No. 72323

All single throw switches, 30-600 amp. inclusive, quick make and quick break; single throw switches 800 amp. and above, quick break only. 250 Volt, 500 Volt A. C. switches furnished with Snuf-Arc barriers at 600 Volt prices.

Weights given are for one switch in corrugated paper box packed for shipping. Knockouts in ends, sides and rear. Main feeder conduit holes placed for 50 cents each list. Multiple terminal lugs regularly furnished on switches 600 amp. and above.

All single throw switches 800 amp. and above, are in boxes having flat instead of panel covers. 30 Amp., 500 Volt A. C. switches made of 60 amp. stock. On request, solid neutral furnished on 3 pole switches at regular list.

250 Volt A. C. or D. C. and 500 Volt A. C.

Mfrs. No.	Amp.	Pole	Volt	Wt. Ea. Lbs. Packed	Price Each
72221	30	2	250	12	**$ 8.86**
72321	30	3	250	14	**10.74**
72+21	30	4	250	17	**12.54**
72251	30	2	500 A. C.	18	**12.60**
72351	30	3	500 A. C.	21	**14.74**
72451	30	4	500 A. C.	29	**17.54**
72222	60	2	250	14	**11.00**
72322	60	3	250	20	**14.50**
72422	60	4	250	29	**17.22**
72252	60	2	500 A. C.	20	**12.80**
72352	60	3	500 A. C.	22	**15.00**
72452	60	4	500 A. C.	31	**17.80**
72223	100	2	250	27	**18.00**
72323	100	3	250	30	**23.06**
72423	100	4	250	47	**28.84**
72253	100	2	500 A. C.	32	**21.50**
72353	100	3	500 A. C.	36	**25.00**
72453	100	4	500 A. C.	53	**29.00**
72224	200	2	250	44	**25.66**
72324	200	3	250	55	**32.24**
72424	200	4	250	70	**43.94**
72254	200	2	500 A. C.	50	**34.00**
72354	200	3	500 A. C.	54	**38.50**
72454	200	4	500 A. C.	91	**44.06**
72225	400	2	250	95	**50.00**
72325	400	3	250	128	**65.00**
72425	400	4	250	165	**88.00**
72255	400	2	500 A. C.	108	**62.00**
72355	400	3	500 A. C.	155	**76.00**
72455	400	4	500 A. C.	170	**89.00**
72226	600	2	250	120	**72.00**
72326	600	3	250	161	**92.00**
72426	600	4	250	200	**122.00**
72256	600	2	500 A. C.	130	**90.00**
72356	600	3	500 A. C.	180	**102.00**
72456	600	4	500 A. C.	230	**125.00**

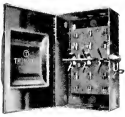
QUICK BREAK ONLY

60227	800	2	250	210	**137.00**
60327	800	3	250	280	**182.00**
60427	800	4	250	380	**237.00**
60228	1000	2	250	250	**186.00**
60228	1200	2	250	250	**186.00**
60328	1000	3	250	330	**255.00**
60328	1200	3	250	330	**255.00**
60428	1000	4	250	450	**337.00**
60428	1200	4	250	450	**337.00**

TRUMBULL SAFETY SWITCHES

TYPE A—QUICK BREAK

Double Throw—Fusible Bottom—For N. E. C. Cartridge Fuses



No. 70321

All double throw switches are quick break only. 250 Volt, 500 Volt A. C. switches are furnished with Snuf-Arc barriers at 600 Volt prices.

Weights given are for one switch in corrugated paper box packed for shipping. Knockouts in ends, sides and rear. Main feeder conduit holes placed for 50 cents each list. Multiple terminal lugs regularly furnished on switches 600 amperes and above.

Double throw switches are self-centering. A plunger operating from spring in the handle hub, rests in a hole in the box when switch is in off position, thus neutralizing gravity. All double throw switches 200 amperes and above are in boxes having flat instead of panel covers.

30 Amperc, 500 Volt A. C. switches made of 60 ampere stock.

250 Volt A. C. or D. C. and 500 Volt A. C.

Mfrs. No.	Amp.	Pole	Volt	Wt. Ea. Lbs. Packed	Price Each
70221	30	2	250	20	**$14.50**
70321	30	3	250	23	**18.00**
70421	30	4	250	31	**25.00**
70251	30	2	500 A. C.	37	**29.50**
70351	30	3	500 A. C.	40	**26.00**
70451	30	4	500 A. C.	56	**44.00**
70222	60	2	250	26	**18.50**
70322	60	3	250	36	**23.50**
70422	60	4	250	47	**40.00**
70252	60	2	500 A. C.	38	**30.00**
70352	60	3	500 A. C.	44	**26.00**
70452	60	4	500 A. C.	68	**45.50**
70223	100	2	250	90	**45.00**
70323	100	3	250	100	**54.00**
70423	100	4	250	140	**62.00**
70253	100	2	500 A. C.	100	**48.00**
70353	100	3	500 A. C.	112	**58.00**
70453	100	4	500 A. C.	155	**68.00**
70224	200	2	250	118	**65.00**
70324	200	3	250	132	**85.50**
70424	200	4	250	180	**99.00**
70254	200	2	500 A. C.	160	**68.00**
70354	200	3	500 A. C.	180	**81.00**
70454	200	4	500 A. C.	230	**105.00**
70225	400	2	250	200	**131.00**
70325	400	3	250	225	**180.50**
70425	400	4	250	300	**201.50**
70255	400	2	500 A. C.	260	**142.00**
70355	400	3	500 A. C.	285	**180.50**
70455	400	4	500 A. C.	390	**218.00**
70226	600	2	250	240	**164.00**
70326	600	3	250	270	**219.00**
70426	600	4	250	360	**259.00**

Fusible top switches furnished special. Prices on request.

TRUMBULL SAFETY SWITCHES

TYPE A—QUICK MAKE AND QUICK BREAK WITH PROTECTIVE SHIELD

Single Throw—Fusible Bottom—For N. E. C. Cartridge Fuses

No. 75322

Protective shields insures safety against contact with live lugs and front post jaws. The fuses and blades are always dead when Switch is in off position. As shield is screwed to brackets it can easily be removed when an examination of Switch is desired.

250 Volt, 500 Volt A. C. switches furnished with Snuf-Arc barriers at 600 volt prices. Weights given are for one switch in corrugated paper box packed for shipping. Knockouts in ends, sides and rear. Main feeder conduit holes placed for 50 cents each list. Multiple terminal lugs regularly furnished on switches 600 amperes and above. On request, solid neutral furnished on 3 pole switch at regular list. 30 ampere 500 volt A. C. switches made of 60 ampere stock.

250 Volt A. C. or D. C. and 500 Volt A. C.

Mfrs. No.	Amp.	Pole	Volt	Wt. Ea. Lbs. Packed	Price Each
75221	30	2	250	13	**$12.50**
75321	30	3	250	15	**15.00**
75421	30	4	250	18	**17.50**
75251	30	2	500 A. C.	19	**16.50**
75351	30	3	500 A. C.	22	**18.50**
75451	30	4	500 A. C.	30	**22.00**
75222	60	2	250	15	**14.50**
75322	60	3	250	21	**17.50**
75422	60	4	250	30	**22.00**
75252	60	2	500 A. C.	21	**17.50**
75352	60	3	500 A. C.	23	**19.50**
75452	60	4	500 A. C.	32	**23.00**
75223	100	2	250	29	**22.00**
75323	100	3	250	32	**27.50**
75423	100	4	250	40	**37.00**
75253	100	2	500 A. C.	34	**24.50**
75353	100	3	500 A. C.	38	**28.00**
75453	100	4	500 A. C.	68	**37.00**
75224	200	2	250	47	**32.00**
75324	200	3	250	56	**41.00**
75424	200	4	250	73	**52.00**
75254	200	2	500 A. C.	53	**36.50**
75354	200	3	500 A. C.	57	**42.00**
75454	200	4	500 A. C.	106	**52.50**
75225	400	2	250	98	**59.00**
75325	400	3	250	132	**82.00**
75425	400	4	250	169	**92.00**
75255	400	2	500 A. C.	111	**94.00**
75355	400	3	500 A. C.	158	**105.00**
75455	400	4	500 A. C.	174	**115.00**
75226	600	2	250	166	**91.00**
75326	600	3	250	205	**108.00**
75426	600	4	250	135	**149.00**
75256	600	2	500 A. C.	185	**126.00**
75356	600	3	500 A. C.	235	**142.00**
75456	600	4	500 A. C.	215	**150.00**

TRUMBULL SAFETY SWITCHES

TYPE A—QUICK MAKE AND QUICK BREAK SNUF-ARC TYPE

Single Throw—No Fuse

No. 36362

The Snuf-Arc Type of 600 volt A. C. switch is of regular knife switch design and material except that it has in addition a swinging moulded barrier hinged on each of the contact jaw posts, which is opcrated by an insulated connecting rod attached to each blade in such a way that when the blade leaves the jaw post, the barrier instantly swings between the breaking points, effectually extinguishing the arc and preventing short circuits caused by side flare.

600 Volt A. C.

Mfrs. No.	Amp.	Pole	Volt	Wt. Ea. Lbs. Packed	Price Each
36261	30	2	600	13	**$11.00**
36361	30	3	600	17	**14.00**
36461	30	4	600	24	**17.50**
36262	60	2	600	13	**11.50**
36362	60	3	600	17	**14.50**
36462	60	4	600	22	**18.50**
36263	100	2	600	23	**17.50**
36363	100	3	600	28	**21.00**
36463	100	4	600	35	**25.50**
36264	200	2	600	33	**23.50**
36364	200	3	600	40	**29.00**
36464	200	4	600	43	**37.50**
36265	400	2	600	....	**56.00**
36365	400	3	600	....	**75.00**
36465	400	4	600	....	**103.00**
36266	600	2	600	....	**94.00**
36366	600	3	600	....	**125.00**
36466	600	4	600	....	**165.00**

Single Throw—Fusible Bottom—For N. E. C. Cartridge Fuses

All 600 volt safety switches of the Snuf-Arc type same size as regular 500 volt A. C.

Weights given are for one switch in corrugated paper box packed for shipping. Knockouts in ends, sides and rear. Main feeder conduit holes placed for 50 cents each list.

30 Ampere switches made of 60 ampere stock.

No. 72361

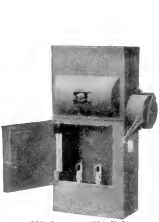
600 Volt A. C.

Mfrs. No.	Amp.	Pole	Volt	Wt. Ea. Lbs. Packed	Price Each
72261	30	2	600	20	**$14.00**
72361	30	3	600	24	**16.50**
72461	30	4	600	31	**20.00**
72262	60	2	600	22	**14.00**
72362	60	3	600	25	**17.00**
72462	60	4	600	32	**20.50**
72263	100	2	600	35	**23.00**
72363	100	3	600	41	**27.50**
72463	100	4	600	55	**32.50**
72264	200	2	600	58	**36.00**
72364	200	3	600	70	**41.50**
72464	200	4	600	90	**48.00**
72265	400	2	600	....	**79.00**
72365	400	3	600	....	**105.00**
72465	400	4	600	....	**123.00**
72266	600	2	600	....	**119.00**
72366	600	3	600	....	**154.00**
72466	600	4	600	....	**192.00**

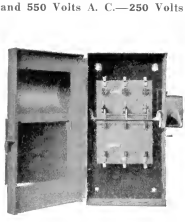
WESTINGHOUSE INDUSTRIAL HEAVY DUTY SAFETY SWITCHES

TYPE WK-55 INDUSTRIAL SAFETY SWITCH

250 and 550 Volts A. C.—250 Volts D. C.



100 Ampere, 550 Volt



100 Ampere, 250 Volt, 3 Pole

Steel Mill Type

The type WK-55 switches are of very rugged construction with quick-make and quick-break action designed to withstand the most severe service in industrial plants. While such service usually demands only disconnecting switches, the capacity and arcing arrangements in the type WK-55 are sufficient to enable the switch to break the locked current of alternating current motors as given in the adjoining table. Terminal screws are provided which may be used for making connections to empensator or in making load tests.

The quick-make and quick-break mechanism which operates the switch blades is enclosed in an external cast iron hub or housing attached to the operating handle. This complete mechanism can be removed and replaced without disturbing the enclosed switch.

Over the fuse compartment is provided a door which is interlocked so that it may be opened only when the switch is in the "off" position at which time all reachable parts are dead. Unfusible switches are not equipped with inner door. An outer door, provided with means for sealing or padlocking, opens over the whole front of the switch cabinet making it possible to inspect the switch while in operation or to make motor load test connections without stopping the motor. A three hole bracket on the side of the cabinet and three holes in the handle casting permits the switch to be locked independently by three individuals.

Steel mill type WK-55 switches are designed to meet the especially severe requirements of a switch in steel mill service. They are equipped with all the features of the WK-55 switch and are designed for the 2 pole-250 volt circuits usually found in steel mill service. 60 ampere switch parts are used on 30 ampere switches. All the steel mill type switches listed are equipped with fuse clips with 250 volt spacing but quipped with 550 volt are quenchers.

Knockouts—Ends and sides of switch cabinets are equipped with knockouts making possible various conduit arrangements.

Note.—The numbers and list prices of switches do not include fuses or padlocks. Prices on extra heavy duty two-pole for 250 volt series motor control furnished on application.

TYPE WK-55 SAFETY SWITCHES

Fusible

Mfrs. No.	Amp.	Pls.	Volts	Arc. Cap. 3 Ph. A. C.	Cap. 15 Sec. Int. D. C.	Shpg. Rating Amp.	Wt. Lb.	Price Each
K-55100	30	2	250	175	45	1500	13	$19.00
K-55101	30	3	250	175	45	1500	16	20.00
K-55102	30	4	250	175	45	1500	20	25.00
K-55150*	30	2	550	175	0	1500	15	23.00
K-55151*	30	3	550	175	0	1500	19	25.00
K-55152*	30	4	550	175	0	1500	23	30.00
K-55103	60	2	250	250	90	3000	18	21.00
K-55104	60	3	250	250	90	3000	22	24.00
K-55105	60	4	250	250	90	3000	26	30.00
K-55153*	60	2	550	250	0	3000	23	26.00
K-55154*	60	3	550	250	0	3000	27	30.00
K-55155*	60	4	550	250	0	3000	31	35.00
K-55106	100	2	250	300	150	4000	48	35.00
K-55107	100	3	250	300	150	4000	55	40.00
K-55108	100	4	250	300	150	4000	62	45.00
K-55156*	100	2	550	300	150	4000	54	42.00
K-55157*	100	3	550	300	0	4000	64	48.00
K-55158*	100	4	550	300	0	4000	74	58.00
K-55109	200	2	250	300	300	6000	55	44.00
K-55110	200	3	250	350	300	6000	62	50.00
K-55111	200	4	250	350	300	6000	69	65.00
K-55159*	200	2	550	300	300	6000	60	52.00
K-55160*	200	3	550	350	0	6000	72	59.00
K-55161*	200	4	550	350	0	6000	94	70.00

Unfused

K-55050*	30	2	250–550	175	45	1500	13	22.00
K-55051*	30	3	250–550	175	45	1500	17	24.00
K-55052*	30	4	250–550	175	45	1500	21	29.00
K-55053*	60	2	250–550	300	90	3000	20	25.00
K-55054*	60	3	250–550	300	90	3000	24	28.00
K-55055*	60	4	250–550	300	90	3000	28	33.00
K-55056*	100	2	250–550	300	150	4000	49	40.00
K-55057*	100	3	250–550	300	150	4000	59	46.00
K-55058*	100	4	250–550	300	150	4000	69	56.00
K-55059*	200	2	250–550	300	300	6000	55	50.00
K-55060*	200	3	250–550	300	300	6000	67	57.00
K-55061*	200	4	250–550	300	300	6000	89	68.00

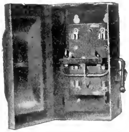
*These switches are 550 volts A. C. equipped with arc quenchers.

STEEL MILL TYPE WK-55 SWITCHES

250 Volts—Fused—QM and QB

Mfrs. No.	Amps.	Poles	Volts	Wt. Lb. Each	Price Each
K-55112	30	2	250	15	$28.00
K-55113	60	2	250	20	29.00
K-55114	100	2	250	50	42.00
K-55115	200	2	250	58	52.00

TRUMBULL SWITCHES
TYPE C—EXTERNALLY OPERATED



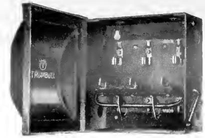
No. 40221

The Type C line has no interlocking features as has the Type A standard line. Box is same as used with Type A Switches. Handle is of heavy steel rod. Button holes in rear of box at top with which to hang box in position until ready to fasten permanently.

Single Throw—Quick Break—Fusible

Mfrs. No.	Amp.	Pole	Volt	Wt., Lbs. Packed	Price Each
40221	30	2	250	8	**$4.50**
40321	30	3	250	9	**6.00**
42321	30	3SN	125–250	9	**6.00**
40421	30	4	250	14	**7.50**
40251	30	2	500 A. C.	18	**7.50**
40351	30	3	500 A. C.	19	**8.25**
40451	30	4	500 A. C.	28	**10.50**
40222	60	2	250	12	**7.50**
40322	60	3	250	17	**8.25**
42322	60	3SN	125–250	17	**8.25**
40422	60	4	250	25	**10.50**
40252	60	2	500 A. C.	18	**8.00**
40352	60	3	500 A. C.	20	**9.00**
40452	60	4	500 A. C.	27	**11.25**
40223	100	2	250	23	**10.50**
40323	100	3	250	30	**13.50**
42323	100	3SN	125–250	30	**13.50**
40423	100	4	250	66	**22.50**
40253	100	2	500 A. C.	33	**12.00**
40353	100	3	500 A. C.	35	**14.50**
40453	100	4	500 A. C.	66	**22.50**
40224	200	2	250	36	**17.00**
40324	200	3	250	50	**23.00**
42324	200	3SN	125–250	50	**23.00**
40424	200	4	250	92	**36.00**
40254	200	2	500 A. C.	71	**24.00**
40354	200	3	500 A. C.	75	**27.50**
40454	200	4	500 A. C.	96	**38.00**

Single Throw
Quick Break
No Fuse

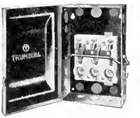


No. 20321

20221	30	2	250	6	**$ 4.25**
20321	30	3	250	9	**5.50**
20421	30	4	250	11	**7.00**
20251	30	2	500 A. C.	11	**6.75**
20351	30	3	500 A. C.	13	**7.00**
20451	30	4	500 A. C.	20	**9.50**
20222	60	2	250–500	11	**7.50**
20322	60	3	250–500	13	**8.00**
20422	60	4	250–500	21	**10.00**
20223	100	2	250–500	16	**9.50**
20323	100	3	250–500	18	**10.50**
20423	100	4	250–500	34	**16.50**
20224	200	2	250–500	22	**16.00**
20324	200	3	250–500	34	**19.50**
20424	200	4	250–500	50	**30.50**

On request, Solid Neutral furnished on 3 Pole Switches at regular list. Knockouts, ends, sides and rear.

TRUMBULL ENTRANCE SWITCHES
EXTERNALLY OPERATED—QUICK BREAK



No. 5793

CLOSED ENDS

30 Amp., 125 Volts

Fusible Bottom for Plug Fuses

Switches are on porcelain base

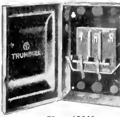
Mfrs. No.	Description	Std. Pkg.	Wt., Lbs. Carton 10 Pkd.	Price Each
***5791**	2 Pole	20	47	**$2.00**
5793	3 Pole	10	70	**3.00**
5893	3 Pole, Solid Neutral	10	70	**3.00**

*Not Quick Break.

KAPPA TYPE
CLOSED ENDS

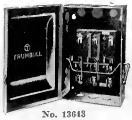
30 Amp., 250 Volts
No Fuse

Switches used are the Kappa Punched-Clip Type—Slate Base.



No. 13641

Mfrs. No.	Poles	Std. Pkg.	Wt., Lbs. Carton 10 Pkd.	Price Each
13640	2	20	50	**$2.30**
13641	3	10	78	**3.50**



No. 13643

KAPPA TYPE
CLOSED ENDS

30 Amp., 250 Volts

Fusible Bottom for N.E.C. Cartridge Fuses

Mfrs. No.	Description	Std. Pkg.	Wt., Lbs. Carton 10 Pkd.	Price Each
13642	2 Pole	20	50	**$2.50**
13643	3 Pole	10	78	**3.90**
13743	3 Pole, Solid Neutral	10	78	**3.90**

Size of Boxes

2 Pole, 4¾ in. w. x 8 in. h. x 3¾ in. d.
3 Pole, 4⅞ in. w. x 9¾ in. h. x 3¾ in. d.

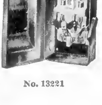
SAFETY TYPE SWITCHES

With Interlocking Catch and Cast Handle

30 Amp. 250 V.—Porcelain Base—For Cartridge Fuses

Mfrs. No.	Pole	Carton	Wt.Lbs. Carton	Price Each
13221	2	10	62	**$3.70**
13321	3	10	80	**4.34**

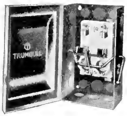
Porcelain Bushings furnished at **8c** each additional. On request, Solid Neutral furnished on 3 Pole Switches at regular lists. Knockouts, ends, sides and rear.



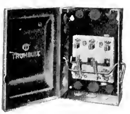
No. 13221

TRUMBULL ENTRANCE SWITCHES

EXTERNALLY OPERATED—QUICK BREAK
OPEN TOP ENDS
For Use With Meter Trims



No. 5791-A



No. 5893-A
Solid Neutral

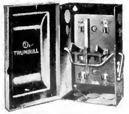
30 Amp., 125 V.—For Plug Fuses—Bottom

Mfrs. No.	Description	Std. Pkg.	Wt., Lbs. Carton 10 Pkd.	Price Each
*5791A	2 Pole	20	50	$2.00
5793A	3 Pole	10	72	3.00
5893A	3 Pole, Solid Neutral	10	72	3.00

End Wall Trim and Back Plate Not Included.

*Not Quick Break. Switches are on porcelain base.

KAPPA TYPE—OPEN ENDS
For Use With Meter Trims



No. 13642-A

No. 13743-A
Solid Neutral

30 Amp., 250 V.—For Enclosed Fuses—Bottom

Mfrs. No.	Description	Std. Pkg.	Wt., Lbs. Carton 10 Pkd.	Price Each
13642A	2 Pole	20	50	$2.50
13643A	3 Pole	10	78	3.90
13743A	3 Pole, Solid Neutral	10	78	3.90

End Wall Trim and Back Plate Not Included.

Switches used are the Kappa Punched-Clip Type Slate Base.

Size of Boxes

2 Pole, 4¾ in. w. x 8 in. h. x 3¾ in. d.
3 Pole, 4⅝ in. w. x 9¾ in. h. x 3¾ in. d.

END WALL TRIMS

Mfrs. No.	Trims, Back Plates and Blank End Walls	Std. Pkg.	Price Each
5730	Sangamo H-2	20	$0.32
5731	GE 1-14	20	.32
*5732	West OA (small Term'l chamber)	20	.32
†5737	West OA (large Term'l chamber)	20	.32
5738	Duncan M-2	20	.32
5733	Back Plate for Sang. H-2	20	.16
5734	Back Plate for GE 1-14	20	.16
5735	Back Plate for West OA	20	.16
5736	Blank End Wall	20	.16
5739	End Wall having porcelain insert, 5 wire holes	10	.32
5740	GE C-6 DC 5-50 Amp	20	3.00
5745	GE D-6 Polyphase, 5-25 Amp.	20	3.50
5746	West OA Polyphase, 5-75 Amp.	20	2.00

Nos. 5730, 31, 32, 36, 37, 38, 39 may be assorted.
Nos. 5733, 34, 35 may be assorted.
*†For OA 2 or 3 Wire meters:
*A 5-10, B 5-20, C 5 Amp.
†C 15-25, A 30-75, B 30-75 Amp.
C 10-15 C 30-75. E 5-10 Amp.

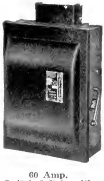
TRUMBULL ENTRANCE SWITCHES

TYPE C
EXTERNALLY OPERATED—QUICK BREAK

30 Amp., 500 V. A. C., 60, 100, 200 Amp. 250 Volts
500 V. A. C., Fusible, Single Throw

Note.—This line of Type C Externally Operated Entrance Switches with ends cut away for use with meter trims, meets a growing demand for protection of meter connections on 30 Amp. 500 V., 60, 100, 200 Amp., 250 V. and 500 V. A. C. Entrance Switches.

Extra ground lug furnished on fused switches only—on left jaw post of 2 pole and on middle jaw post of 3 pole solid neutral switches.



60 Amp.
Switch 3 Pole with
No. 150 trim for G. E.
I-14 Meter

OPEN TOP END

Fusible—Single Throw—For Use With Meter Trims

Mfrs No.	Amp	Pole	Volt	Wt. Ea. Lbs. Pkd.	Price Each
44251	30	2	500AC	17	$ 7.50
44351	30	3	500AC	19	8.25
44451	30	4	500AC	25	10.50
44222	60	2	250	12	7.50
44322	60	3	250	17	8.25
45322	60	3SN	250	17	8.25
44422	60	4	250	25	10.50
44252	60	2	500AC	18	8.00
44352	60	3	500AC	20	9.00
44452	60	4	500AC	27	11.25
44223	100	2	250	23	10.50
44323	100	3	250	30	13.50
45323	100	3SN	250	30	13.50
44423	100	4	250	66	22.50
44253	100	2	500AC	33	12.00
44353	100	3	500AC	35	14.50
44453	100	4	500AC	66	22.50
44224	200	2	250	36	17.00
44324	200	3	250	50	23.00
45324	200	3SN	250	50	23.00
44424	200	4	250	92	36.00
44254	200	2	500AC	71	24.00
44354	200	3	500AC	75	27.50
44454	200	4	500AC	96	38.00

†S. N. designates Solid Neutral.

TRUMBULL METER PROTECTIVE TRIMS

FOR TYPE C ENTRANCE SWITCHES

For use with 30 Amp. 500 V.A.C, 60, 100, 200 Amp. 250V., 500 V.A.C., Type C Entrance Switches on Single Phase Meters.

No. 150
For 60 Amp. Switch with G. E. I-14 Meter

No. 161. For 100 Amp. Switch with Sanganno H Meter

G-E I-14 or Fort Wayne K-5 Meter

Meters Wire	Amps.	Volts	Switch Amps.	Volts	Mfrs. No.	Price Each
2&3	5–25	110–220	60	250	150	$0.70
2&3	50–75	110–220	60	250	151	.70
			100	250	152	.85
2	100–300	110–220	100	250	153	.85
3	100–150	110–220	200	250	154	1.10

Sangamo H Meter

2	5–15	100–440	30	500*		
3	5–15	110–220	60	250	155	.70
2	5–15	100–440	60	500*		
3	5–15	110–220				
	1922 Model					
			30	500*		
			60	250	157	.70
			60	500*		
2	25–100	100–440	100	250	158	.85
3	25–100	100–220	100	500*		
			200	250	159	1.10
			200	500*		
			30	500*		
			60	250	160	.70
2	25–100	100–440	60	500*		
3	25–100	110–220	100	250	161	.85
	1922 Model		100	500*		
			200	250	162	1.10
			200	500*		

Westinghouse OA Meter

			30	500*		
			60	250	163	.70
2&3	5–20	100–440	60	500*		
	Small Terminal		100	250	164	.85
			100	500*		
			60	250	165	.70
			60	500*		
	15–75	100–440				
	Large Terminal		100	250	166	.85
			100	500*		

Duncan M-2 Meter

2	5–25	100–550	30	500*		
3	5–15	100–550	60	250	167	.70
			60	500*		
			100	250	169	.85
			100	500*		
2	50–100	100–550				
3	25–100	100–550	200	250	170	1.10
			200	500*		

Solid End Plates

Mfrs. No.	Amp.	Price Each	Mfrs. No.	Amp.	Price Each
146	30–60	$0.40	148	200	$0.40
147	100	.40	.....	.....	.....

*A. C.

TRUMBULL METER PROTECTIVE TRIM

FOR TYPE C ENTRANCE SWITCHES

For use with 30 Amp. 500 V.A.C., 60, 100, 200 Amp. 250 V., 500 V.A.C., Type C Entrance Switches and D.C. and Polyphase Meters.

G-E D-6 Meter, Polyphase

Meters Wire	Amps.	Volts	Switch Amps.	Volts	Mfrs. No.	Price Each
			30	500*		
3 or 4	5–25	100–600	60	250	186	$6.00
			60	500*		
			60	250	187	8.00
3 or 4	50–75	100–600	100	250		
			100	500*	188	†
			100	250		
3 or 4	100–150	100–600	100	500*	189	8.00
			200	250		
			200	500*	190	†

G-E D-3 Meter, Polyphase

			30	500*		
			60	250	183	†
3 or 4	3–75	100–600	60	500*		
			100	250	184	†
			100	500*		
			100	250		
3 or 4	100–150	100–600	100	500*	184	†
			200	250		
			200	500*	185	†

G-E C-6 Meter, D. C.

			30	500*		
2 or 3	5–50	100–240	60	250	173	3.50
3	5–50	400–500	60	500*		
			100	250		
			100	500*	174	3.50
3	75	220				
2	75	110–220	100	250	175	†
3	100–150	220	100	250	176	†
2	100–150	110–220	200	250	177	†

G-E C-7 Meter, D. C.

2	5–50	600	60	500*	178	4.10
			100	500*	179	4.10

G-E C-12 Meter, D. C.

2	5–25	100–250	30	500*		
3	5–25	200–500	60	250	180	3.50
			60	500*		
2	5–25	100–250	100	250		
3	5–25	200–500	100	500*	181	3.50

Sangamo H Meter, Polyphase

			30	500*		
			60	250	192	†
			60	500*		
3 or 4	All Amps.	100–440	100	250	193	†
			100	500*		
			200	250	194	†
			200	500*		

Sangamo D-5 Meter, D. C.

Westinghouse OA Meter, Polyphase

			60	250	196	†
3	All Amps.	100–200	100	250	197	†
			200	250	198	†
			30	500*		
			60	250	199	8.50
3 or 4	5–75	100–440	60	500*		
			100	250	200	†
			100	500*		
			100	250	201	8.50
3 or 4	100–150	100–440	100	500*		
			200	250	202	8.50
			200	500*		

*A. C. The Meter end of the Trim is made to fit the meter terminal chamber; the Box end of the Trim is made to fit the particular size of box with which it is to be used. Listed above in one unit, are the combinations of sizes most frequently used. †Prices on request.

TRUMBULL SAFETY SWITCHES

TYPE A COMPENSATOR SWITCH
QUICK MAKE AND QUICK BREAK

Fusible Bottom—For N. E. C. Std. Fuses

This Circle T Compensator Switch is a fusible bottom Switch with the addition of a lug attached to each hinge post to take the starting leads to Compensator, making two leads, one unfused and one fused, from each pole.

Compensator Showing Switch No. 59323

The Compensator Switch, ahead of Compensator, enables all power to be cut off from Compensator when repairs, oil changing or any renewals are made. The fuses of Switch are used as running fuses for Compensator, being connected only with running side of same, the starting side of the Compensator being cut off from fuses.

Fibre end plate with elongated holes for taking wires is fastened in bottom end of box. Knockouts can be furnished instead of fibre plate on request.

250 V. D. C., 500 V. and 600 V. A. C.

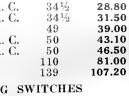
Mfrs. No.	Amp.	Pole	Volt	Wt., Lbs. Each Packed	Price Each
59321	30	3	250	13	**$13.96**
59421	30	4	250	16½	**18.50**
59351	30	3	500 A. C.	20	**17.66**
59361	30	3	600 A. C.	20	**19.60**
59322	60	3	250	19	**17.36**
59422	60	4	250	27½	**22.50**
59352	60	3	500 A. C.	21	**17.96**
59362	60	3	600 A. C.	21	**20.00**
59323	100	3	250	28	**26.92**
59423	100	4	250	43	
59353	100	3	500 A. C.	34½	**28.80**
59363	100	3	600 A. C.	34½	**31.50**
59324	200	3	250	49	**39.00**
59354	200	3	500 A. C.	50	**43.10**
59364	200	3	600 A. C.	50	**46.50**
59325	400	3	250	110	**81.00**
59326	600	3	250	139	**107.20**

MOTOR REVERSING SWITCHES

Double Throw, No Fuse Switches

These Switches are used for reversing D. C. or A. C. motors.

Wires are so run between outer contacts as to reverse the direction of the current when Switch is thrown from one set of contacts to the other.



No. 87322

250 V. D. C. and 500 V. A. C.

Mfrs. No.	Amp.	Pole	Volt	Wt., Lbs. Each Packed	Price Each
87221	30	2	250	14	**$12.00**
87321	30	3	250	17	**16.00**
87421	30	4	250	19	**21.00**
87251	30	2	500-AC	18	**14.50**
87351	30	3	500-AC	20	**18.50**
87451	30	4	500-AC	30	**27.00**
87222	60	2	250-500	21	**15.00**
87322	60	3	250-500	23	**19.00**
87422	60	4	250-500	31	**27.50**
87223	100	2	250-500	32	**25.00**
87323	100	3	250-500	38	**32.00**
87423	100	4	250-500	48	**55.50**
87224	200	2	250-500	45	**36.50**
87324	200	3	250-500	73	**55.00**
87424	200	4	250-500	100	**78.50**

TRUMBULL SAFETY SWITCHES

TYPE A MOTOR STARTING SWITCHES
QUICK MAKE AND QUICK BREAK

No. 83361

This line of Motor Starting Switches consists of regular 30 Ampere no fuse Switches with Inverse Time Protective Cutouts for motors rated 5 h. p. and under, 110, 220, 440, 550 Volts A. C.—single, two and three phase, giving carefully adjusted overload protection.

The boxes are very compact and easily mounted on motor-driven machinery.

Handle is moved forward to close switch and backward to open switch. The protective cutouts take care of two position movements commonly necessary to operate various motor starting switches which depend upon short circuiting the fuses to start the motor. One switch serves for 500 volt and 600 volt work.

Switches 500 V.—600 V. A. C. are equipped with Snuf-Arc barriers. Switches are of regular safety type with full interlocking features on box—Quick Make and Quick Break.

110-250 V. A.C.

Mfrs. No.	Amp.	Pole	Wt., Lbs. Each Packed	Price Each
83221	30	2	17	**$9.00**
83321	30	3	19	**11.00**
83421	30	4	22	**13.75**

251-600 V. A. C. Snuf-Arc Type

83261	30	2	22	**12.75**
83361	30	3	27	**15.50**
83461	30	4	36	**19.00**

Mfrs. No. and price do not include Protective Cutouts.

INVERSE TIME PROTECTIVE CUTOUTS AND LINKS

Sold Separate from Switches

Cutouts—Clamp Type

Price Each Any Rating	Prices Carton 10 Assorted Ratings	Prices Carton 10 one Rating
$0.90	**$7.50** for 10	**$7.00** for 10

Old screw shell type of cutout (plug) furnished on request.

Protective Cutout

Links

Eight extra links furnished with each 3-4 Pole Switch, four extra links with each 2 Pole Switch, or four extra links per cutout, being placed inside of box on a rod so they will easily be accessible when needed.

Mfrs. No.	Price for 10	Price for 100	Price for 500
167539	**$0.50**	**$3.50**	**$14.50**

TRUMBULL SAFETY SWITCHES
TYPE A MOTOR STARTING SWITCHES
30 Amp., 110, 220, 440 and 550 Volts, A. C.
INVERSE TIME ELEMENT OVERLOAD RELAY—UNDER VOLTAGE RELEASE

No. 86321

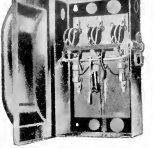
Inverse time element overload relay and under voltage—controlled through inverse time element overload relays in place of fuses. Under voltage relay coil operates direct on drop of voltage. Overload relays operate indirectly by opening the under voltage relay coil circuit.

Unit is in same sized box as standard 60 ampere, 500 volt alternating current type A switch, and the switch is of standard type A construction. Under voltage device is inside the box, mounted on a slate, is of simple rugged construction and not dependent on delicate trigger mechanism. It is magnet type; coil and steel core are so designed that there is practically no heating, and shunt loss of coil is but 7 watts and then only when motor is running.

In case it is necessary to change the ampere capacity of the switch, simply insert a set of new relays of proper rating. The change is as quickly and easily made as changing fuses.

The manual operation is by means of a single on or off movement of handle, the same as with any ordinary enclosed switch. The overload relays take eare of the starting load and will trip the switch open if motor does not start inside of a given time.

PROTECTION AGAINST SINGLE PHASE OPERATION



No. 86351 With Snuf-Arcs

When a polyphase motor is protected by fuses either time limit or regular, if the fuse on one phase only operates, the motor is left running single phase with frequent disastrous results. This cannot occur with this motor switch, as no matter which phase is overloaded or which single relay acts, the switch opens, thus opening the entire motor circuit, thereby preventing single phase operation being caused by the very device which is supposed to protect against it.

440, 550 volt alternating current switches are equipped with Snuf-Arcs. Same as regular knife switch design except that it has in addition a swinging moulded barrier hinged on each of the contact jaw posts; the barrier which is operated by an insulated connecting rod attached to each blade in such a way that when the blade leaves the jaw post, the barrier instantly swings between the breaking points effectually extinguishing the arc by preventing side flare.

TRUMBULL SAFETY SWITCHES
TYPE A MOTOR STARTING SWITCHES
30 Amp., 110, 220, 440 and 550 Volts, A. C.
INVERSE TIME ELEMENT OVERLOAD RELAY—UNDER VOLTAGE RELEASE

Prices include U. V. R. coil, but do not include overload relays which are listed below.

QUICK BREAK
SINGLE PHASE—TWO POLE
3 H. P., 110 Volt—5 H. P., 220 Volt
60 Cycle

110 Volts		220 Volts		440 Volts		550 Volts	
Mfrs. No.	Price Each	Mfrs. No.	Price Each	Mfrs. No.	Price Each	Mfrs. No.	Price Each
95211	19.00	95221	19.00	95251	21.50	95261	22.50

25 Cycle

85211	19.00	85221	19.50	85251	26.00	85261	27.00

THREE PHASE—THREE POLE
5 H. P., 110 Volt—10 H. P., 220, 440, 550 Volts
60 Cycle

96311	21.50	96321	21.50	96351	24.50	96361	26.00

25 Cycle

86311	21.50	86321	22.50	86351	31.00	86361	29.50

TWO PHASE—THREE WIRE—THREE POLE
5 H. P., 110 Volt—10 H. P., 220, 440, 550 Volts
60 Cycle

98311	22.50	98321	22.50	98351	27.00	98361	29.00

25 Cycle

88311	22.50	88321	24.50	88351	31.50	88361	33.00

TWO PHASE—FOUR WIRE—FOUR POLE
5 H. P., 110 Volt—10 H. P., 220, 440, 550 Volts
60 Cycle

99411	29.50	99421	29.50	99451	35.50	99461	39.00

25 Cycle

89411	29.50	89421	32.50	89451	41.00	89461	43.50

One overload relay needed for single phase. Two overload relays needed for 3 phase, 2 phase (3 and 4 wire).

State on order: Voltage, frequency, phase, number of poles, horsepower of motor, full load ampere capacity of motor. To avoid error mention manufacturer's number.

OVERLOAD RELAYS AND U. V. R. COILS
As Used on Motor Starting Switches

Relays are in capacities from 1 to 36 amperes and are effective on any voltage up to 600 volts, alternating current, or 250 volts, direct current. Switches for potentials above 250 volts are furnished with Snuf-Arcs. The relays are all of same size and are similar to cartridge fuse being held in place by standard 60 ampere fuse clips. Spacing between clips is such that a cartridge fuse cannot be substituted. Inserting the relay into clips makes all necessary connections. Relays do not require replacing as do fuses.

Inverse Time Element—1-36 Amperes

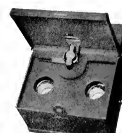
Mfrs. No.	Amperes	Price Each	Mfrs. No.	Amperes	Price Each
9571	1	$2.40	9579	9	$2.40
9571½	1½	2.40	95710	10	2.40
9572	2	2.40	95712	12	2.40
9572½	2½	2.40	95714	14	2.40
9573	3	2.40	95716	16	2.40
9573½	3½	2.40	95718	18	2.40
9574	4	2.40	95720	20	2.40
9574½	4½	2.40	95724	24	2.40
9575	5	2.40	95728	28	2.40
9576	6	2.40	95732	32	2.40
9577	7	2.40	95736	36	2.40
9578	8	2.40	.....	....	.....

WESTINGHOUSE SAFETY MOTOR STARTERS

TYPES WK-10 AND WK-20

For Cotrolling Small A. C. Motors
Maximum 3 and 5 H. P.
Single, Two and Three Phase 125-250-440-550 Volts

Type WK-10
(Door Open)



Type WK-20
(Door Open)

The horsepower capacity of these starters depends upon the capacity of the thermal cutouts used. The thermal cutout is so constructed that it protects the motor and at the same time allows the maximum production from a given motor by utilizing the thermal capacity of the motor. They permit the heavy starting current and short time peaks above full load without interruption of service. These momentary peak loads are present in practically all motor applications and are not injurious to the motor, therefore, the cutouts do not open. However, if these peak loads continue for sufficient length of time to endanger the motor, the thermal cutouts open to disconnect the motor from the line.

TYPES WK-10 AND WK-20 MOTOR STARTERS

Type WK--10 with Cutouts

Mfrs. No.	Poles	Maximum HP 125V.	250V.	440V. 550V.	Cutouts Required	Shpg. Wt. Lb.	Price Each
K-55863	2	1	2	..	1-Plug	6	$10.00
K-55864	3	2	2	2	2-Plug	6	12.00

Length, 7½ inches; width, 4½ inches; depth, 3⅜ inches.

Type WK-20 with Cutouts

Mfrs. No.	Poles	125V.	250V.	440V. 550V.	Cutouts Required	Shpg. Wt. Lb.	Price Each
K-55865	2	1	3	..	1-Plug	8	10.50
K-57530	2	3	5	5	‡1-Cart.	8	11.50
K-55866	3	2	5	5	2-Plug	8	13.00
K-57259	4	2	5	5	2-Plug	8	16.50

The number of starter does not include cutouts which should be ordered separately.

Length, 9⅜ inches; width, 6¾ inches; depth, 4⅜ inches.

‡For cartridge type thermal cutouts see a following page.

ACCESSORIES

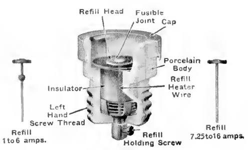
For WK-10 and WK-20 Motor Starters

Mfrs. No.	Description	Shpg. Wt.Lb.	Price Each
K-57216	Junction Box and Cover Complete for Mounting Two WK-10 Starters..........	6	$2.75
K-59396	Junction Box and Cover Complete for Mounting Two WK-20 Starters..........	8	3.50
K-57218	Pedestal, 4¾ Inches High..	2¾	1.40
K-57219	Pedestal, 6¾ Inches High..	3⅜	1.40
K-57481	Extra Support Necessary for Mounting One WK-10 Motor Starter on Pedestal..	2	1.40
K-59511	Extra Support Necessary for Mounting One WK-20 Motor Starter on Pedestal..	2	1.50

WESTINGHOUSE SAFETY MOTOR STARTERS

THERMAL PROTECTIVE DEVICES FOR USE WITH WK MOTOR STARTERS

Plug Type and Cartridge Type Thermal Cutouts



Phantom of Plug Type Cutout

Application of Plug Type Thermal Cutouts Light Load Starting

In order to properly apply the plug type thermal cutouts it is necessary to determine the starting conditions under which the motor will operate. In the greater number of applications the motor is not called upon to start heavy loads and in such cases the cutouts should be applied in accordance with columns 1 and 2 of the application table on a following page. If the cutouts are applied in accordance with these columns the cutouts will prevent a 50° motor from being overloaded more than approximately 10 per cent and will allow the motor a maximum of 3 seconds to come up to speed, when starting, without opening the circuit. They will also permit the motor to carry short time overloads and peak loads, which do not cause injurious heating without opening the circuit.

Heavy Load Starting

There are certain applications where it is necessary for the motor to start comparatively heavy loads and in these applications it is necessary for the cutout to provide a longer time element in starting. The cutouts should, in this case, be applied in accordance with columns 1 and 3 of the application table on a following page. The cutouts in column 3 should, however, be applied only to 40° motors of the corresponding ampere per terminal ratings given in column 1 as 50° motors of these ratings would be considerably overloaded if the cutouts in column 3 were used. The cutouts in column 3 will allow the motor a maximum of 8 seconds to come up to speed without opening the circuit and will protect 40° motors from injurious overloads.

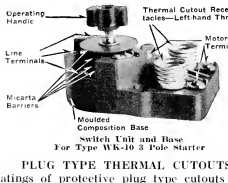
For prices and ratings of protective plug type thermal cutouts see a following page.

Note.—Plug type thermal cutouts cannot be used with direct current service.

WESTINGHOUSE SAFETY MOTOR STARTERS

TYPES WK-10 AND WK-20

TYPES WK-10, WK-20 AND WK-22
REFILLS FOR PLUG TYPE THERMAL CUTOUTS



Switch Unit and Base For Type WK-10 3 Pole Starter

PLUG TYPE THERMAL CUTOUTS

Ratings of protective plug type cutouts and refills for use with types WK-10 and WK-20 motor starters are shown below.

	Price Each
Cutout Complete, any capacity	$1.25
Refills, any capacity	.05

Standard package of thermal cutouts, 10. Thermal refills, 25.

CARTRIDGE TYPE THERMAL CUTOUTS

For Types WK-10, WK-20, WK-22 Motor Starters

Mfrs. No.	Amps.	Max. Volts	Price Each	Mfrs. No.	Amps.	Max. Volts	Price Each
296672	1.0	550	**$1.50**	**296682**	7	550	**$1.50**
296673	1.5	550	**1.50**	**296683**	8	550	**1.50**
296674	2.0	550	**1.50**	**296684**	9	550	**1.50**
296675	2.5	550	**1.50**	**296685**	10	550	**1.50**
296676	3.0	550	**1.50**	**296686**	12	440	**1.50**
296677	3.5	550	**1.50**	**296687**	15	440	**1.50**
296678	4.0	550	**1.50**	**296688**	20	250	**1.50**
296679	4.5	550	**1.50**	**296689**	25	250	**1.50**
296630	5.0	550	**1.50**	**302106**	30	250	**1.50**
296681	6.0	550	**1.50**	**302107**	35	250	**1.50**

Two extra refill washers (No. 315656) are furnished with each cutout.

To change the rating of cartridge type thermal cutouts the complete cutout must be changed.

RATINGS OF PROTECTIVE PLUG TYPE CUTOUTS AND REFILLS

For Use with Types WK-10 and WK-20 Motor Starters Ampere Basis

Ampere ratings should be based on amperes per terminal shown on name plate of motor.

A careful analysis should be made whenever possible to determine whether heavy starting or heavy overload conditions are to be met. For application of plug type thermal cutouts for use with types WK-10 and WK-20 motor starters see a preceding page.

Column 1 Full Load Amperes Per Terminal of Motor	Maximum Horse Power, 5 — Column 2 Light Load Starting Starting 3 Seconds Maximum Amperes Per Plug	Mfrs. No. Plug Cutout Complete with Refill	Column 3 Heavy Load Starting For 40° Motors Starting 8 Seconds Maximum Amperes Per Plug	Mfrs. No. Plug Cutout Complete with Refill	Refills for Use with Plug Type Thermal Cutouts Amperes	Mfrs. No. Refill
0.7 to 0.9	1.0	306343	1.5	**306344**	**1.0**	**306325**
1.0 to 1.2	1.5	306344	1.5	306344	1.5	**306326**
1.3 to 1.4	1.5	306344	2.0	306345	2.0	**306327**
1.5 to 1.7	2.0	306345	2.0	306345	2.5	**306328**
1.8 to 1.9	2.0	**306345**	2.5	306346	3.0	306329
2.0 to 2.2	2.5	**306346**	3.0	**306347**	3.5	306330
2.3 to 2.4	2.5	**306346**	3.5	**306348**	4.0	306331
2.5 to 2.7	**3.0**	**306347**	3.5	**306348**	4.5	306324
2.8 to 2.9	**3.0**	**306347**	4.0	**306349**	**5.0**	**306323**
3.0 to 3.2	3.5	**306348**	4.5	**306342**	6.00	306322
3.3 to 3.4	3.5	**306348**	4.5	**306342**	7.25	**306321**
3.5 to 3.8	4.0	**306349**	5.0	**306341**	8.00	**306320**
3.9 to 4.3	4.5	**306342**	6.0	**306340**	9.25	**306319**
4.4 to 4.8	5.0	**306341**	6.0	306340	10.50	**306318**
4.9 to 5.8	6.0	**306340**	8.0	306338	11.75	**306317**
5.9 to 7.0	7.25	**306339**	9.25	306337	13.00	**306316**
7.1 to 7.8	8.00	**306338**	10.50	306336	14.25	**306315**
7.9 to 9.0	9.25	**306337**	11.75	**306335**	16.00	**306314**
9.1 to 10.2	10.50	**306336**	13.00	**306334**	18.00	**393171**
10.3 to 11.5	11.75	**306335**	14.25	**306333**	.....	.....
11.6 to 12.5	13.00	**306334**	16.00	**306332**	.....	.....
12.6 to 14.0	14.25	**306333**	16.00	**306332**	.....	.....
14.1 to 15.5	16.00	**306332**	18.00	**393172**	.....	.....
15.0 to 16.0	16.00	**306332**	18.00	**393172**	.....	.....
16.0 to 18.0	18.00	**393172**	*18.00	**393172**	.....	.....

Note.—Each refill is operated only at its rated cutout capacity.

To change the rating of any plug type cutout it is only necessary to change the refill, as all plugs are standard in size.

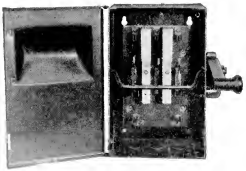
*Based on approximately 4 seconds starting maximum.

WESTINGHOUSE SAFETY MOTOR STARTERS

TYPE WK-22—HEAVY DUTY

For Controlling A. C. Motors Up to 7½ H. P. Maximum

250-440 and 550 Volts
Two and Three Phase Service



Type WK-22 motor starters are of the knife type construction and were designed particularly for heavy duty service where starting conditions are severe, and heavy vibration present, also where there are heavy momentary overloads.

Type WK-22 motor starters are furnished for two and three phase service (no single phase types). For single phase, we recommend the Westinghouse WK-20 starter, style K-57530.

All type WK-22 starters are arranged for cartridge type thermal cutouts. Cutouts ordered to correspond with the terminal ampere rating of the motor as shown on the nameplate will allow 10 per cent overload capacity to the motor. If desired to operate the motor on a heavier overload, order larger cutouts. Cutouts rated at 25 per cent greater capacity than ampere rating, will allow the motor 37½ per cent overload (10% of 1,25= 125; .25x.125=.375 or 37½ per cent).

Prices and application of cartridge type thermal cutouts are listed in following column.

PRICES AND STYLES WK-22

Price covers WK-22 starter complete with thermay cutouts. The number of starter does not, however, include cutouts which should be ordered separately.

Mfrs. No.	Ampere* 250-550 v.	Phase	Thermal Cutouts Required	Poles	Appx. Shpg. Wt.Lb.	Price Each
K-60617	30-10	3	3	2	16	**$20.00**
K-60838	30-10	2	4	2	20	**26.00**

*Current shown at 250 volts is rating of switch and current shown at 550 volts is maximum 550 volt rating of the cutout. The H. P. capacity of the starter is dependent upon the ampere rating of the thermal cutouts used with the starter.

WESTINGHOUSE SAFETY MOTOR STARTERS

TYPE WK-22—HEAVY DUTY

CARTRIDGE TYPE THERMAL CUTOUTS

Maximum Horse Power 7½

Mfrs. No.	Amps.	Price Each	Mfrs. No.	Amps.	Price Each
296672	1.0	**$1.50**	**296682**	7	**$1.50**
296673	1.5	**1.50**	**296683**	8	**1.50**
296674	2.0	**1.50**	**296684**	9	**1.50**
296675	2.5	**1.50**	**296685**	10	**1.50**
296676	3.0	**1.50**	**296686**	12	**1.50**
296677	3.5	**1.50**	**296687**	15	**1.50**
296678	4.0	**1.50**	**296688**	20	**1.50**
296679	4.5	**1.50**	**296689**	25	**1.50**
296680	5.0	**1.50**	**302106**	30	**1.50**
296681	6.0	**1.50**	**302107**	35	**1.50**

Two extra refill washers (No. 315656) are furnished free with each cutout. Extra refills, **$0.05** list each.

Standard package of thermal cutouts, 10. Thermal refills, 25.

To change the rating of cartridge type thermal cutouts the complete cutout must be changed.

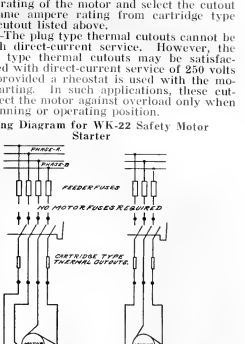
Application of Cartridge Type Thermal Cutouts For WK-22 Starter

Very Severe Starting Conditions

The use of Types WK-10 and WK-20 switches is not recommended for applications where extremely severe starting conditions are encountered. Both of these switches are equipped with the plug type cutout which does not have the extremely long time element necessary for satisfactory operation under these conditions. For such applications we strongly recommend the use of the WK-22 motor starters which are equipped with cartridge type thermal cutouts. These devices allow the motor to carry 10% overload continuously without opening the circuit and allow the motor a considerably longer time to come up to speed than is allowed by the plug type cutout. In applying these cutouts it is necessary to determine the ampere per terminal rating of the motor and select the cutout of the same ampere rating from cartridge type thermal cutout listed above.

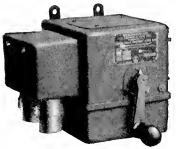
Note.—The plug type thermal cutouts cannot be used with direct-current service. However, the cartridge type thermal cutouts may be satisfactorily used with direct-current service of 250 volts or less, provided a rheostat is used with the motor in starting. In such applications, these cutouts protect the motor against overload only when in the running or operating position.

Wiring Diagram for WK-22 Safety Motor Starter



WESTINGHOUSE CLASS 10100 STARTING SWITCHES

FOR SQUIRREL CAGE INDUCTION MOTORS—TWO AND THREE PHASE
25-40-50 AND 60 CYCLES—110-220-440 AND 550 VOLTS
Across-the-Line Type—Non-Reversing—Quick Make and Quick Break



No. 815—10 H. P. Maximum

No. 816—25 H. P. Maximum

Enclosed—Class 10100 quick make and quick break motor starting switches are entirely enclosed in a dust-proof case, eliminating all danger of shocks and burns to operator or workman, due to contact with live parts.

Low Voltage Relay—A low voltage relay is provided, which not only causes the contacts to open if the power supply fails, but it also prevents them from being held closed until the power supply is restored. This prevents injury to the operator or workman, when making repairs or adjustments, by the unexpected restarting of the machine after a shut down due to a voltage failure.

Safety Stops—The motor can be stopped at any time from one or more remote points if push buttons are connected in series with the low voltage relay coil. These buttons may be located on the driven machine, or at any convenient point.

Hand Reset—The hand reset feature makes it necessary to reset the toggle mechanism before the switch contacts can be closed, no matter whether the contacts have been opened due to overload failure or voltage, or by the throwing of the handle to the off position. This prevents accidents, due to the unexpected starting of the machine by the switch handle being struck by a passing object, or an attendant leaning against the handle.

Overload Relay—An inverse-time-limit overload relay protects the motor against injury due to overloads or single phase operation. The inverse-time-limit feature allows maximum production by utilizing the thermal capacity of the motor. It permits the heavy starting current and momentary peak loads, which are present in practically all applications without interruptions of service. These short time overloads are not injurious to the motor. Fuses do not provide this protection, as fuses of sufficient capacity for the starting current and momentary peak loads are entirely too large to provide overload protection for running conditions, and the motor may be burned out without the fuses opening the circuit.

The use of this overload relay, which automatically resets itself as soon as the overload is removed, prevents the following objectionable features, which are common when fuses are used:

Personal injury from contact with live parts when renewing fuses.

Loss of production, due to long shut downs to replace, and many times find or purchase fuses.

The elimination of all overload protection, which many times results in a burned out motor the next time an overload occurs, by the substitution of copper wire for fuses when fuses are not available.

This starter cannot be held closed on overloads, or short circuits as the switching mechanism trips free from the operating handle.

Contact Oil—The No. 815 switch is used without contact oil in 110, 220 and 440 volt service as the tank is lined with asbestos and non-combustible barriers are placed between adjacent sets of contacts. When combustible or explosive material is present in the atmosphere, contact oil can be used as an added precaution against igniting this material. No. 815 switches for 550 volt service and all the No. 816 switches are supplied with contact oil.

Class 10100 switches are small in size and durable in construction. The use of drawn steel for the frame gives maximum strength with minimum weight. All parts are liberally designed to meet the most severe operating conditions.

Contacts—Quick opening and closing—rolling motion—The contacts, practically the only wearing parts, are of the same rugged type as used in severe steel mill service. Their operation is such that it is impossible for the operator to retard their motion once they have started to open or close. They will not remain in a nearly open or nearly closed position and cause arcing which rapidly burns away the contacts. When closed, the contacts are held firmly in place by means of a strong spring.

Open or Conduit Wiring—Knockout holes at the top and back permit of easy access for either conduit or open wiring. Instructions for operating and wiring diagram are permanently pasted inside the cover. The asbestos-lined tank can be removed without the use of tools. This construction permits easy inspection of parts.

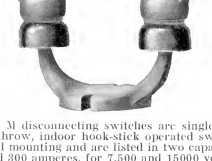
Class 10100 switches are very flexible in their application and may be used as line switches for wound-rotor induction motors, or other services where the features of this switch are desirable. They can be furnished with or without overload and low voltage protection, and for either hand or shipper rod operation.

Prices, rating and detailed information on application.

WESTINGHOUSE DISCONNECTING SWITCHES

TYPE M DISCONNECTING SWITCHES

Single Pole—Single Throw—Upright for Wall Mounting



Type M disconnecting switches are single pole, single throw, indoor hook-stick operated switches for wall mounting and are listed in two capacities, 100 and 300 amperes, for 7,500 and 15000 volts.

The live parts are mounted on porcelain insulators carried on an iron yoke. The switches are furnished without locks and all parts except the porcelain insulators are finished in dull black.

Mfrs. No	Maximum Volts	Maximum Amperes	Appx. Wt. Lb. Net	Shpg.	Price Each
50382	7500	100	14	18	**$15.00**
173295	7500	300	14	25	**19.00**
50383	15000	100	18	23	**20.00**
173296	15000	300	23	30	**25.00**

TYPE S DISCONNECTING SWITCHES

For Indoor Mounting Only

Type S disconnecting switches are for indoor mounting only. They are furnished in the front-connected form for voltages up to and including 73,000 volts and in the rear-connected form or combinations of front and rear-connected form, for voltages up to and including 25,000 volts, single and double throw and selector type, single pole hook-stick operation.

The insulators have a large head and a broad base to secure maximum strength. The corrugations are shaped so as to give a long creepage surface, a great flashing distance, and a form that does not chip easily so that the insulators can be handled with minimum breakage. A very high factor of safety for the flashing distance is used in the design of the insulators for the low voltages, because the voltage surges at these voltages are higher in proportion than at the higher voltages.

On the 2,500 volt switch the live parts are mounted on a marble base or panel. For the 7,500 and higher voltage switches the live parts are held by corrugated porcelain insulators on which top and bottom caps are cemented.

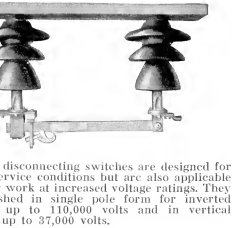
The bases are of a form that gives maximum strength and lightness. The switches for 7,500 volts or more have bases of angle iron, giving a very light and strong structure and one that is well adapted for front and rear-connected switches.

Prices and complete information upon application.

WESTINGHOUSE DISCONNECTING SWITCHES

TYPE R DISCONNECTING SWITCHES

Single Pole for Inverted and Vertical Mounting



Type R disconnecting switches are designed for outdoor service conditions but are also applicable for indoor work at increased voltage ratings. They are furnished in single pole form for inverted mounting up to 110,000 volts and in vertical mounting up to 37,000 volts.

Insulator assemblies with galvanized hardware have been standardized in maximum ratings of 73,000 volts and in normal ratings from 88,000 to 154,000 volts. These assemblies are interchangeable with, and are the same as, those used on new expulsion fuses, redesigned choke coils, and other standardized outdoor equipment. Only three bolt circles have been used to cover this complete line. These are either two or four ⅝ inch bolts on a 2⅝ inch circle, four ½ inch bolts on a 3 inch circle or four ⅝ inch bolts on a 5 inch circle. These three sizes extend up to and including 37,000 volts, 110,000 volts and 154,000 volts, respectively. Switches with either underhung or inclined insulators all use identical insulator assemblies for a given rating.

The 4,500 and 7,500 volt insulators are single-piece porcelain, the 15,000, 25,000 and 37,000 volt insulators are two-shell and the 50,000 and 73,000 volt are three-shell. All of these are maximum rated and the next higher rating of the apparatus should be chosen where tests above standard A. I. E. E. requirements are desired. Insulators for 88,000 and 110,000 volt service consist of two sections, each having three shells of porcelain. The 132,000 volt posts are three shell; three sections and four sections of the same type are used for 154,000 volts. All of these multiple section posts are normally rated and are subject to 5 per cent increase in rating.

Hot dip galvanized, channel iron bases of standard section are used on all type R switches. Up to 73,000 volts inclusive, the bases are arranged for either flat or 1¼ inch pipe mounting, U-bolts for pipe mounting are not furnished except when ordered.

Standard hook-stick-operated switches are furnished for underhung and vertical wall mounting, that is, 45 degree mounting—the former up to 110,000 volts and the latter up to 37,000 volts, inclusive. Inverted type switches can be obtained for upright mounting if desired. Switches for vertical mounting have the insulator axis at 45 degrees to the base. Insulators on these switches are raised high enough above the base so that the dielectric field is not appreciably distorted.

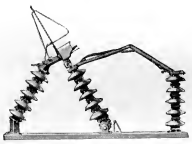
Prices and complete information upon application.

EEE POLE TOP SWITCHES

TYPE 6600

Mfrs. No.	No. of Poles	Voltage	Amperes	Price Each
6613	2	15000	150	**$106.00**
6615	3	15000	150	**144.00**
6617	4	15000	150	**185.00**

TYPE 8800-J



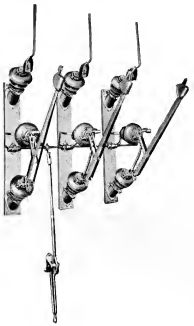
All Three Pole Switches

Mfrs. No.	Voltage	Amperes	No. of Insulator Units	Price Each
88155	15000	1000	1	**$548.00**
88156	15000	600	1	**508.00**
88157	15000	300	1	**467.00**
88355	35000	1000	2	**700.00**
88356	35000	600	2	**650.00**
88357	35000	300	2	**599.20**
88455	45000	1000	3	**826.00**
88456	45000	600	3	**776.00**
88457	45000	300	3	**725.20**
88666	66000	600	4	**1244.09**
88667	66000	300	4	**1184.00**
88736	73000	600	5	**1472.00**
88737	73000	300	5	**1412.00**
88886	80000	600	6	**1594.00**
88887	80000	300	6	**1534.00**
881107	110000	300	7	**1640.00**
881157	115000	300	8	**1774.00**
881327	132000	300	9	**2120.00**
881547	154000	300	10	**2500.00**

All prices include operating mechanism.

EEE POLE TOP SWITCHES

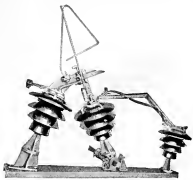
TYPE 2200



All Three Pole Switches

Mfrs. No.	Voltage	Amperes	Price Each
2207	7500	300	**$325.00**
2215	15000	300	**334.00**
2225	25000	300	**352.00**
2235	35000	300	**428.00**
2245	45000	300	**518.00**
2266	66000	300	**860.00**
2280	80000	300	**934.00**

TYPE 8800-P



All Three Pole Switches

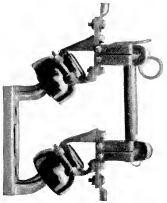
Mfrs. No.	Voltage	Amperes	Price Each
8815	15000	300	**$400.00**
8825	25000	300	**426.00**
8835	35000	300	**518.00**
8845	45000	300	**624.00**
8866	66000	300	**1092.00**
8880	80000	300	**1190.00**

EEE RURAL LINE EQUIPMENT

Heavier equipment for higher voltage and amperage can be supplied

FUSED DISCONNECT

Fuse Up to 75 Amperes

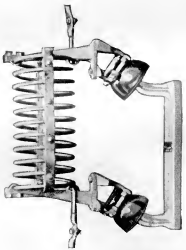


No. 79024 Fused Disconnect

Mfrs. No.	Voltage	Price Each	Mfrs. No.	Voltage	Price Each
79024	4000	**$20.00**	**79026**	15000	**$30.00**
79025	7500	**24.00**	**79027**	25000	**40.00**

CHOKE COILS

25 Ampere Capacity



No. 79020 Choke Coil

Vertical

Mfrs. No.	Voltage	Price Each	Mfrs. No.	Voltage	Price Each
79020	4000	**$30.00**	**79022**	15000	**$40.00**
79021	7500	**34.00**	**79023**	25000	**50.00**

Horizontal

79016	4000	**30.00**	**79018**	15000	**40.00**
79017	7500	**34.00**	**79019**	25000	**50.00**

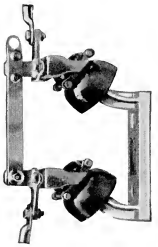
EEE RURAL LINE EQUIPMENT

Heavier equipment for higher voltage and amperage can be supplied.

DISCONNECT SWITCH

SINGLE POLE—SINGLE THROW

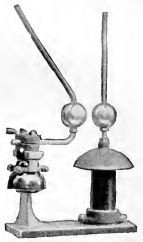
100 Ampere Capacity



No. 13736 Disconnect Switch

Mfrs. No.	Voltage	Price Each	Mfrs. No.	Voltage	Price Each
13736	4000	**$23.30**	**13740**	15000	**$33.30**
13738	7500	**27.30**	**13742**	25000	**43.30**

LIGHTNING ARRESTER



No. 79012 Lightning Arrester

Mfrs. No.	Voltage	Price Each	Mfrs. No.	Voltage	Price Each
79012	4000	**$30.00**	**79014**	15000	**$108.00**
79013	7500	**58.20**	**79015**	25000	**125.00**

EEE CABLE END BELLS

No. 108

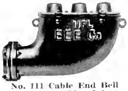
TYPE 10-AF AND 10-BF

Indoor Service
Flat Vertical Shape

Mfrs. No.	No. of Conductors	Voltage Up to	Max. Outside Diam. of Cable, In. Wiped or Clamp Joint	Pipe Joint	Price Each Without Compound	Price Each With Compound
Type 10-AF						
107	2	4000	1¾	1⅜	**$15.20**	**$17.20**
108	3	4000	1¾	1⅜	**15.80**	**17.80**
Type 10-BF						
1002	2	7500	2¾	2	**19.80**	**22.80**
1003	3	7500	2¾	2	**20.40**	**23.40**
1004	4	7500	2¾	2	**21.00**	**24.00**

TYPE 11-FL AND 11-FR

Indoor Service—Angle Shape



No. 111 Cable End Bell Left Hand (Pipe Joint)

No. 111 Cable End Bell Right Hand (Pipe Joint)

Mfrs. No.	No of Conductors	Voltage Up to	Max. Outside Diam. of Cable, In. Wiped or Clamp Joint	Pipe Joint	Price Each Without Compound	Price Each With Compound
110	2	7500	3¼	2¾	**$23.20**	**$27.20**
111	3	7500	3¼	2¾	**25.00**	**29.00**
112	4	7500	3¼	2¾	**26.80**	**30.80**
113	2	15000	3¼	2¾	**28.50**	**32.50**
114	3	15000	3¼	2¾	**30.20**	**34.20**
115	4	15000	3¼	2¾	**32.00**	**36.00**

No. 372

TYPE 37-F

Outdoor Service

Maximum outside diameter of cable: Wiped or clamp joint, 3¼ inches; pipe joint, 2¾ inches.

Mfrs. No.	No. Con.	Voltage Up to	Price Each Without Comp.	Price Each With Comp.
372	3	15000	**$32.00**	**$36.00**

TYPES TC-10, TC-82 AND TC-14

Outdoor Service
(Can also be used indoors)
Flat Vertical Shape

Type TC-82 No. 15001

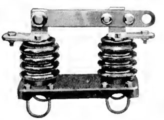
Mfrs. No.	No. of Conductors	Voltage Up to	Max O.D. Lead Over Lead Sheath Any Type Joint	Price Each Without Compound	Price Each With Compound
Type TC-10					
15002	2	3000	1⅞	**$40.00**	**$44.00**
15000	3	3000	1⅞	**46.00**	**50.00**
Type TC-82					
15003	2	3000	2⅞	**43.00**	**47.00**
15001	3	3000	2⅞	**49.00**	**53.00**
Type TC-14					
15006	2	3000	3	**58.00**	**64.00**
15012	3	3000	3	**66.00**	**72.00**
15007	2	7500	2⅝	**69.00**	**75.00**
15004	3	7500	2⅝	**79.00**	**85.00**
15010	2	15000	2¼	**82.00**	**88.00**
15008	3	15000	2¼	**94.00**	**100.00**

Always specify outside diameter of cable over lead sheath, size of conduit, operating voltage and type of joint required.

EEE DISCONNECTING SWITCHES

INDOOR SERVICE

Interchangeable part construction. Double blades insure large radiating area and cool operation. Solid copper clips eliminate riveted or sweated joints. Simple and positive locking device.



Type Z-1 Flat or Pipe Mounting

Type Z-1 Single Throw Mfrs. Nos. Without Lock	Type Z-1 Single Throw Mfrs. Nos. With Lock	Price Each	Type Z-2 Double Throw Mfrs. Nos. Without Lock	Type Z-2 Double Throw Mfrs. Nos. With Lock	Price Each
100 Amperes, 7500 Volts					
10102	....	**$18.16**	**10116**	....	**$22.99**
200 Amperes, 7500 Volts					
10202	....	**19.08**	**10122**	....	**25.23**
300 Amperes, 7500 Volts					
10400	....	**20.00**	**10416**	....	**28.00**
....	**10401**	**25.00**	....	**10417**	**33.00**
300 Amperes, 15000 Volts					
10402	....	**21.00**	**10418**	....	**29.00**
....	**10403**	**27.00**	....	**10419**	**35.00**
300 Amperes, 25000 Volts					
10404	....	**24.00**	**10420**	....	**32.00**
....	**10405**	**30.00**	....	**10421**	**38.00**
600 Amperes, 7500 Volts					
10432	....	**26.00**	**10448**	....	**35.00**
....	**10433**	**32.00**	....	**10449**	**41.00**
600 Amperes, 15000 Volts					
10434	....	**27.00**	**10450**	....	**37.00**
....	**10435**	**33.00**	....	**10451**	**43.00**
600 Amperes, 25000 Volts					
10436	....	**31.00**	**10452**	....	**42.00**
....	**10437**	**37.00**	....	**10453**	**48.00**
800 Amperes, 7500 Volts					
10464	....	**33.00**	**10480**	....	**44.00**
....	**10465**	**39.00**	....	**10481**	**50.00**
800 Amperes, 15000 Volts					
10466	....	**35.00**	**10482**	....	**46.00**
....	**10467**	**41.00**	....	**10483**	**52.00**
800 Amperes, 25000 Volts					
10468	....	**39.00**	**10484**	....	**51.00**
....	**10469**	**45.00**	....	**10485**	**67.00**
1200 Amperes, 7500 Volts					
10496	....	**50.00**	**10512**	....	**67.00**
....	**10497**	**57.00**	....	**10513**	**74.00**
1200 Amperes, 15000 Volts					
10498	....	**52.00**	**10514**	....	**70.00**
....	**10499**	**59.00**	....	**10515**	**77.00**
1200 Amperes, 25000 Volts					
10500	....	**55.00**	**10516**	....	**73.00**
....	**10501**	**62.00**	....	**10517**	**80.00**
1500 Amperes, 7500 Volts					
10528	....	**57.00**	**10544**	....	**76.00**
....	**10529**	**64.00**	....	**10545**	**83.00**
1500 Amperes, 15000 Volts					
10530	....	**60.00**	**10546**	....	**80.00**
....	**10531**	**67.00**	....	**10547**	**87.00**
1500 Amperes, 25000 Volts					
10532	....	**64.00**	**10548**	....	**83.00**
....	**10533**	**71.00**	....	**10549**	**90.00**

A FEW TYPES G & W POT HEADS

15000 Volts Single Conductor Clamping Ring and Stuffing Box Cable Entrance

Wiping Sleeve 6600 Volts Single Cond.

Form M Shape C Two Conductor

6600 Volts—Single Cond.

6600 Volts Porcelain Tube and Connector

Form M Shape E

45000 Volts Single Conductor

Form L Shape B 6600 Volts

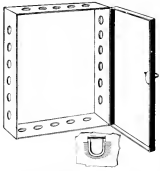
Form M Shape B Up to 25000 Volts

Form N Shape C 15000 Volts—Inside Only

We are prepared to supply a full line of G & W Potheads. Information and prices on request.

STEEL CUTOUT BOXES AND CABINETS

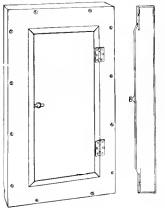
STYLE S AND SL BOX



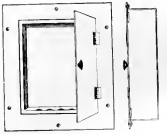
All boxes electrically welded and furnished with tight door flanged on four sides, good knockouts, and with dependable catch. Smaller boxes have ring pull which lies flush with door when boxes are not in use and for convenience in stacking.

STYLE SB AND SBL CABINET

Surface type cabinet with trim—may be furnished with or without regular wiring gutter and trim. Always mention width of gutter if desired and give outside dimensions of cabinet. We will also supply a flat door instead of beveled, if preferred. Prices on request.



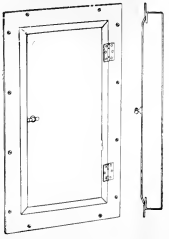
STYLE F AND FL CABINET



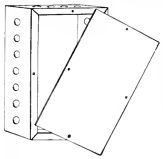
The tubs are electrically welded with all four edges flanged out and the trim, with door attached, is fastened to these flanges with machine screws. On cabinets where 16 or 14 gauge doors and trims are used the trims are rabbeted, making the door close flush with the trim. On all cabinets where 10 or 12 gauge doors and trims are required the trims are not rabbeted, but doors are furnished with beveled edges and T handle, giving a neat appearance and close fitting door.

STYLE FB AND FBL CABINET

Same as Style F or FL, except fitted with beveled door and "T" handle. Furnished for use with or without gutter. Always state width of gutter desired and give outside measurements of the cabinet. Prices upon request.

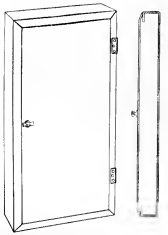


STYLE P AND PL OR JUNCTION BOXES



Made with all four edges flanged in and with flat removable covers fastened with machine screws. For price add 10 per cent to Style "S" or "SL" lists respectively.

STYLE PB AND PBL



Same as above, except door is hinged and beveled. Furnished with Vault Handle or "T" handle. Very neat, substantial and appropriate where ordinary box will not answer. Prices on application.

GENERAL

1. **Tubs** have standard knockouts for ½-inch conduit on 2-inch centers all around. Gutter walls have loom knockouts on 2-inch centers also.

2. **Steel Gutters:** If steel gutters are desired add 33⅓ per cent to list price of cabinet.

3. **Tubs** only or trims and doors only—prices on application.

4. **Non-Standard Sizes**—Price these at price of next size larger in tables on following page.

5. **Underwriters' Requirements**—Flush type (also SBL).

No. 16 U. S. Gauge Tub, No. 14 U. S. Gauge trim if no single dimension exceeds 24 inches or any surface area 360 square inches.

No. 14 U. S. Gauge tub, No. 12 U. S. Gauge trim if no single dimension exceeds 40 inches or any surface area 1000 square inches.

No. 12 U. S. Gauge Tub and Trim if no single dimension exceeds 60 inches or any surface area 1500 square inches.

No. 10 U. S. Gauge Tub and Trim for any cabinet larger than the above.

6. Cutout boxes or cabinets containing cutouts or panel boards of more than 4 circuits must have wiring gutter and gutter frame, unless the wires enter opposite the terminals.

SURFACE TYPE CUTOUT BOXES

STYLE SL

Labeled. Constructed in accordance with the Underwriters' rules.

W.	H.	3 In.	4 In.	5 In.	6 In.	9 In.	12 In.	Ga.
4½	8	$1.04	$1.20	.....	.....	.....	.....	16
4½	10	1.20	1.36	.....	.....	.....	.....	16
6	6	1.00	1.16	$1.32	$1.60	.....	.....	16
6	8	1.24	1.36	1.56	1.88	.....	.....	16
6	10	1.40	1.56	1.80	2.12	.....	.....	16
6	12	1.56	1.72	2.00	2.28	.....	.....	16
6	15	1.88	2.04	2.28	2.60	.....	.....	16
8	8	1.48	1.60	1.84	2.16	.....	.....	16
8	10	1.68	1.84	2.08	2.44	.....	.....	16
8	12	1.96	2.08	2.36	2.68	.....	.....	16
8	15	2.32	2.48	2.76	3.08	.....	.....	16
8	18	2.64	2.80	3.08	3.48	.....	.....	16
10	10	2.00	2.12	2.40	2.88	$4.48	.....	16
10	12	2.28	2.44	2.72	3.08	5.08	.....	16
10	15	2.72	2.88	3.16	3.64	5.88	.....	16
10	18	3.16	3.24	3.56	4.00	6.68	.....	16
10	21	3.68	4.12	4.52	5.16	7.92	.....	16
10	24	4.12	4.60	5.04	5.60	8.64	.....	16
10	30	.....	10.08	10.96	11.48	13.84	$15.88	14
10	36	.....	11.72	12.64	13.28	16.04	18.36	14
12	12	2.60	2.72	3.16	3.40	5.72	6.80	16
12	15	3.12	3.28	3.56	3.88	6.68	7.84	16
12	18	3.60	3.70	4.04	4.44	7.52	8.84	16
12	21	4.16	4.60	5.16	5.68	8.84	10.36	16
12	24	4.72	5.08	5.72	6.20	9.64	11.24	16
12	30	.....	11.28	12.24	12.76	15.52	17.72	14
12	36	.....	13.16	14.28	14.88	17.64	20.28	14
12	42	.....	25.00	26.36	28.00	32.56	37.32	12
12	48	.....	28.00	29.60	31.32	36.64	41.60	12
15	15	3.40	3.84	4.24	4.64	7.92	9.12	16
15	18	3.84	4.28	4.72	5.12	8.80	10.24	16
15	21	4.96	5.40	5.88	6.52	10.20	11.72	16
15	24	5.68	5.96	6.48	7.08	11.12	12.96	16
15	30	.....	13.56	14.76	15.76	17.52	19.80	14
15	36	.....	15.64	16.92	17.12	19.92	23.72	14
15	40	.....	16.92	18.24	18.48	21.56	24.40	14
15	44	.....	30.40	32.12	33.76	39.04	44.04	12
15	48	.....	32.68	34.52	36.36	41.92	47.28	12
18	18	4.44	4.92	5.32	5.80	9.92	11.52	16
18	21	.....	11.20	12.20	12.80	15.04	17.28	14
18	24	.....	12.84	13.46	14.12	16.56	18.88	14
18	30	.....	15.32	16.56	17.20	19.72	22.72	14
18	36	.....	17.92	19.24	19.64	22.44	25.76	14
18	40	.....	19.56	20.84	21.20	24.28	27.48	14
18	44	.....	34.12	35.80	37.32	43.16	48.52	12
18	48	.....	36.80	38.56	40.56	46.40	51.84	12
21	21	.....	12.68	14.16	14.44	16.64	19.16	14
21	24	.....	14.08	15.08	15.80	18.12	20.76	14
21	30	.....	17.28	18.56	19.04	21.48	24.60	14
21	36	.....	20.16	21.48	22.00	25.04	28.28	14
21	40	.....	21.76	23.88	24.68	26.80	30.48	14
21	44	.....	38.48	40.32	42.08	47.84	53.44	12
21	48	.....	41.48	43.36	45.36	51.44	57.24	12
24	24	.....	16.00	16.84	17.48	20.52	22.76	14
24	30	.....	19.16	20.44	21.12	24.28	27.44	14
24	36	.....	22.68	23.72	24.32	27.28	31.16	14
24	40	.....	24.64	25.72	26.28	29.76	33.24	14
24	44	.....	42.20	44.12	46.00	52.12	57.84	12
24	48	.....	45.52	47.44	49.68	55.96	61.96	12
30	30	.....	26.60	27.76	29.36	32.76	36.20	14
30	36	.....	46.20	47.64	50.08	56.04	61.80	12
30	40	.....	50.60	52.48	54.76	60.68	66.88	12
30	44	.....	55.08	57.16	59.24	65.88	69.80	12
30	48	.....	59.36	61.40	63.88	70.72	77.40	12
36	36	.....	53.20	54.80	56.96	63.48	69.44	12
36	40	.....	57.72	59.52	61.68	68.36	74.92	12
36	44	.....	80.60	83.40	86.20	95.56	104.12	10
36	48	.....	87.08	90.00	93.32	100.76	111.64	10

STYLE S

Substantially made of No. 16 gauge but not approved. Add 25 per cent for No. 14 gauge.

W.	H.	4 In.	6 In.	8 In.	10 In.	Ga.
10	30	$5.52	$6.00	$6.48	$7.48	$8.96	16
10	36	6.84	7.12	7.64	8.88	10.44	16
12	30	6.24	6.80	7.00	8.32	9.64	16
12	36	7.36	8.20	8.32	9.80	11.32	16
12	42	10.32	11.16	11.52	13.20	14.96	16
12	48	10.60	11.56	12.92	14.80	16.76	16
15	30	7.48	7.96	8.36	9.96	11.12	16
15	36	8.76	9.48	10.04	11.56	13.00	16
15	42	11.88	12.64	12.92	14.56	16.52	16
15	48	13.24	14.04	14.48	16.28	18.52	16
18	21	6.24	6.80	7.04	8.32	9.52	16
18	24	6.88	7.48	7.72	9.04	10.32	16
18	30	8.32	8.92	9.24	10.76	12.20	16
18	36	9.80	10.48	10.92	12.68	14.32	16
18	42	13.24	14.04	14.44	16.36	18.28	16
18	48	14.72	15.56	16.20	18.16	20.16	16
21	21	7.20	8.08	8.16	9.40	10.76	16
21	24	7.88	8.52	8.76	10.20	11.48	16
21	30	9.44	9.92	10.80	12.08	13.80	16
21	36	11.16	11.92	12.96	14.20	16.12	16
21	42	14.72	16.16	16.40	18.24	20.32	16
21	48	16.32	18.00	18.16	20.28	22.64	16
24	24	9.04	9.60	9.68	11.12	12.60	16
24	30	10.64	11.12	11.48	13.12	14.50	16
24	36	12.60	13.08	13.56	15.28	17.36	16
24	42	16.40	16.88	17.40	19.36	21.56	16
24	48	18.28	18.80	19.44	21.56	24.04	16
30	30	13.08	13.84	14.12	16.08	18.72	16
30	36	15.04	15.68	16.24	18.32	20.68	16
30	42	19.44	20.36	21.56	24.00	26.36	16
30	48	21.72	22.68	24.24	26.68	29.36	16
36	36	25.84	26.80	27.60	30.00	33.52	16
36	42	28.96	30.48	31.52	34.28	38.20	16
36	48	33.08	34.12	35.60	38.64	42.00	16

Entrance Switch Boxes

4½x5x3½ Inches—Style SL—**$0.92**
4½x9x3½ Inches—Style SL— **1.23**

GENERAL

1. Standard boxes have knockouts for ½-inch conduit on 2-inch centers all around. Gutter walls have loom knockouts on 2 inch centers. All boxes also have holes in each corner of back for mounting.

2. The smaller surface type boxes are made in the style SL only.

3. **Non-Standard Sizes:** Price these at price of next size larger in above tables.

4. **Tubs only:** Style S or SL, use 85 per cent of list.

5. **Hasp and Staples**—for use with padlock, add **$1.00** to list.

6. **Style S:** We recommend that anything 24 x 36 or 30 x 36 and over be not less than No. 14 gauge.

FLUSH TYPE CABINETS

STYLE FL

Labeled. Constructed in accordance with the Underwriters' rules.

W.	H.	3 In.	4 In.	5 In.	6 In.	Tub Gauge	Door Gauge
6	10	$2.92	$3.56	$4.04	$4.09	16	14
6	12	3.48	3.92	4.56	4.66	16	14
6	15	4.08	4.56	5.20	5.59	16	14
8	8	3.08	3.64	4.16	4.55	16	14
8	10	3.60	4.20	4.48	4.84	16	14
8	12	4.24	4.68	5.28	5.50	16	14
8	15	5.00	5.56	6.16	6.65	16	14
10	10	4.36	4.88	5.32	5.74	16	14
10	12	4.96	5.44	6.12	6.29	16	14
10	15	6.08	6.48	7.04	7.24	16	14
10	18	6.84	7.44	8.12	8.58	16	14
10	21	7.72	8.52	9.16	9.44	16	14
10	24	8.84	9.64	10.24	10.32	16	14
10	30	.....	16.64	17.60	17.76	14	12
10	36	.....	19.32	20.28	20.40	14	12
12	12	5.76	6.16	7.00	7.88	16	14
12	15	6.88	7.40	8.04	8.24	16	14
12	18	7.72	8.40	9.36	9.40	16	14
12	21	9.00	9.68	10.68	10.84	16	14
12	24	10.80	11.44	12.36	12.56	16	14
12	30	.....	19.00	20.20	20.80	14	12
12	36	.....	21.56	22.88	23.20	14	12
12	42	.....	30.64	32.12	33.44	12	12
12	48	.....	34.68	36.16	37.76	12	12
15	15	8.40	8.76	9.56	9.60	16	14
15	18	9.32	9.88	10.64	10.80	16	14
15	21	10.68	11.44	12.24	12.60	16	14
15	24	12.32	12.72	13.48	13.96	16	14
15	30	.....	22.40	23.32	23.48	14	12
15	36	.....	25.36	26.52	26.80	14	12
15	42	.....	36.80	38.24	39.80	12	12
15	48	.....	41.68	43.24	45.16	12	12
18	18	11.04	11.72	12.60	12.64	16	14
18	21	.....	19.24	20.52	20.64	14	12
18	24	.....	21.32	22.36	22.48	14	12
18	30	.....	26.04	27.24	28.28	14	12
18	36	.....	29.68	30.96	31.52	14	12
18	42	.....	42.12	43.56	45.24	12	12
18	48	.....	47.72	49.32	51.08	12	12
21	21	.....	21.44	23.56	24.08	14	12
21	24	.....	23.64	24.92	25.24	14	12
21	30	.....	28.84	30.04	32.32	14	12
21	36	.....	33.28	34.60	35.40	14	12
21	42	.....	47.28	48.88	50.72	12	12
21	48	.....	53.48	55.24	57.48	12	12
24	24	.....	27.04	27.56	27.68	14	12
24	30	.....	31.72	33.00	34.00	14	12
24	36	.....	37.92	38.48	39.36	14	12
24	42	.....	51.56	53.16	55.12	12	12
24	48	.....	58.36	60.08	62.12	12	12
30	30	.....	40.00	41.16	43.24	14	12
30	36	.....	58.04	60.12	62.76	12	12
30	42	.....	68.00	69.84	72.00	12	12
30	48	.....	76.92	78.92	81.64	12	12
36	36	.....	67.16	68.32	71.08	12	12
36	42	.....	94 12	98.64	99.44	10	10
36	48	.....	106.24	108.80	112.52	10	10

For illustrations, see second preceding page.

STYLE F

Made of 12, 14, or 16 gauge to make substantial cabinets but not approved.

W.	H.	3 In.	4 In.	5 In.	6 In.	Tub Gauge	Door Gauge
6	x 10	$2.84	$3.36	$3.88	$3.92	16	16
6	x 12	3.28	3.76	4.40	4.48	16	16
6	x 15	3.88	4.36	5.04	5.37	16	16
8	x 8	2.92	3.48	4.04	4.36	16	16
8	x 10	3.36	4.00	4.44	4.62	16	16
8	x 12	3.88	4.40	5.04	5.30	16	16
8	x 15	4.64	5.20	5.84	6.25	16	16
10	x 10	4.08	4.64	5.08	5.46	16	16
10	x 12	4.64	5.12	5.84	6.16	16	16
10	x 15	5.64	6.04	6.64	6.80	16	16
10	x 18	6.36	6.96	7.68	8.40	16	16
10	x 21	7.12	7.96	8.60	8.92	16	16
10	x 24	8.20	9.00	9.60	9.68	16	16
10	x 30	.....	13.04	13.88	14.00	16	14
10	x 36	.....	15.20	15.96	16.24	16	14
12	x 12	5.32	5.76	6.64	7.12	16	16
12	x 15	6.32	6.84	7.52	7.68	16	16
12	x 18	7.32	7.80	8.76	8.90	16	16
12	x 21	8.16	8.84	9.92	10.04	16	16
12	x 24	9.32	10.00	10.96	11.12	16	16
12	x 30	.....	14.88	15.84	15.98	16	14
12	x 36	.....	16.96	18.00	18.36	16	14
12	x 42	.....	24.04	25.32	25.60	16	12
12	x 48	.....	26.80	28.20	29.12	16	12
15	x 15	7.80	8.16	9.00	9.14	16	16
15	x 18	8.76	9.36	10.16	10.32	16	16
15	x 21	9.76	10.56	11.40	11.76	16	16
15	x 24	11.36	11.80	12.60	12.92	16	16
15	x 30	.....	17.52	18.24	18.44	16	14
15	x 36	.....	19.80	20.76	21.04	16	14
15	x 42	.....	28.72	29.80	30.12	16	12
15	x 48	.....	32.28	33.44	34.04	16	12
18	x 18	10.12	10.84	11.76	11.96	16	16
18	x 21	.....	12.24	13.32	13.72	16	16
18	x 24	.....	13.80	14.64	15.08	16	16
18	x 30	.....	20.24	21.32	22.12	16	14
18	x 36	.....	23.20	24.24	24.72	16	14
18	x 42	.....	33.96	34.88	37.14	16	12
18	x 48	.....	38.20	39.24	42.94	16	12
21	x 21	.....	13.88	15.72	15.60	16	16
21	x 24	.....	15.44	16.72	17.12	16	16
21	x 30	.....	22.52	23.68	24.04	16	14
21	x 36	.....	26.00	27.08	27.72	16	14
21	x 42	.....	37.40	39.80	40.36	16	12
21	x 48	.....	42.08	44.76	45.56	16	12
24	x 24	.....	18.04	18.48	19.00	16	14
24	x 30	.....	24.72	25.80	27.44	16	14
24	x 36	.....	29.52	30.04	30.96	16	14
24	x 42	.....	42.00	42.48	44.64	16	12
24	x 48	.....	47.28	47.68	48.40	16	12
30	x 30	.....	38.04	39.40	39.80	16	12
30	x 36	.....	43.88	45.08	45.12	16	12
30	x 42	.....	53.48	54.76	56.16	14	12
30	x 48	.....	60.64	62.00	63.88	14	12
36	x 36	.....	54.76	55.56	57.40	14	12
36	x 42	.....	62.88	64.20	65.40	14	12
36	x 48	.....	71.00	72.36	73.80	14	12

Entrance Switch Cabinets

4½ x 9 x 3½—Style FL—**$2.50**

Panel Boards
and
Cabinets

The following pages list a few of the standard panels and cabinets which we can furnish. On account of the many kinds and styles space does not permit a complete listing.

We are in position to furnish you with catalogs and prices on panels and cabinets of the following manufacture:

Krantz (Westinghouse Elec. & Mfg. Co.)

Benjamin-Starret (Benjamin Electric Mfg. Co.)

Crouse-Hinds Company

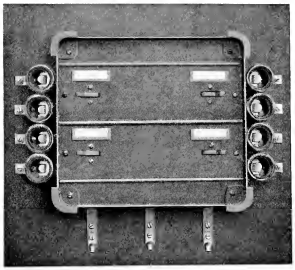
We feature and favor the "Safety" type of panel, but where they are not required we can furnish the "Live Front" type.

Quotations on special panel boards, together with sketches of lay out, will be furnished upon request.

WESTINGHOUSE PANEL BOARDS

TYPES CP AND CT

DEAD FRONT WITH PUSH BUTTON OR TUMBLER SWITCHES



APPLICATION

These panels are designed for use in stores, residences, churches and schools having circuits of 660 watt capacity.

The panel boards are provided with either push button or tumbler switches of 20 ampere capacity making them capable of handling the initial current surges of the 660 watt type C lamp load.

CONSTRUCTION

These panels are made up with 20 ampere, 125 volt Perkins push button switches of special design and are provided for plug fuses.

The base is of 1 inch slate with a ½ inch slate gutter frame. There is a metal sectional cover for each pair of switches enclosing switches, fuses and bus bars; this gives ready access only to the switch buttons.

All circuit parts are removable from the front. Should there be an occasion to replace a damaged switch, it is necessary only to take off the switch cover section and remove the defective part. This is done without disconnecting wires, without exposing other switches and without having to remove the panel from the box.

Types CP and CT panel boards are provided with either terminal lugs, fuse connections or knife switches for the main connection.

A brush type switch of a design similar to those used on the type T panel boards may be furnished if desired. An additional charge will be made for CP and CT panel boards with brush type switches in the mains. Such cases should be referred to the nearest district office for price.

All exposed parts are finished in dull black and a card holder is provided for each circuit.

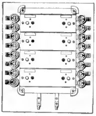
WESTINGHOUSE PANEL BOARDS

TYPE CP PANEL BOARDS

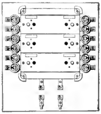
Safety Type with Push Switches
Mains—2 Wire, 125 Volts

Branches 2 Wire, 20A Push Switches and Fuse Holders

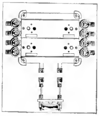
Prices Do Not Include Fuses



Terminal Lugs



Fuse Connections



Switch and Fuse

Plug Fuse Holders Mfrs.No.	Code Fuse Holders Mfrs.No.	No. of Cir.	Dimens. of Cabinets, Inches High	Wide	Deep	Shpg. Wt.Lb.	Price Panels and Cab.
With Terminal Lugs in Mains							
391870	391780	4	18	21	4	115	$59.00
391871	391781	6	22	21	4	125	72.00
391872	391782	8	26	21	4	140	83.00
391873	391783	10	28	21	4	150	94.00
391874	391784	12	32	21	4	165	108.00
391875	391785	14	34	21	4	175	119.00
391876	391786	16	38	21	4	185	131.00
391877	391787	18	42	23	4	195	155.00
391878	391788	20	46	23	4	205	166.00
391879	391789	22	48	23	4	215	189.00
391880	391790	24	52	23	4	225	204.00
391881	391791	26	54	23	4	240	225.00
391882	391792	28	58	23	4	255	240.00
391883	391793	30	60	23	4	275	252.00
391884	391794	32	64	23	4	285	263.00
With Fuse Connections in Mains							
391885	391795	4	20	21	4	135	63.00
391886	391796	6	26	21	4	150	77.00
391887	391797	8	28	21	4	165	87.00
391888	391798	10	32	21	4	175	97.00
391889	391799	12	38	21	4	195	116.00
391890	391800	14	40	21	4	205	137.00
391891	391801	16	44	21	4	215	149.00
391892	391802	18	50	23	4	230	178.00
391893	391803	20	52	23	4	240	194.00
391894	391904	22	56	23	4	250	214.00
391895	391805	24	58	23	4	260	230.00
391896	391806	26	62	23	4	275	241.00
391897	391807	28	64	23	4	300	253.00
391898	391808	30	68	23	4	310	264.00
391899	391809	32	70	23	4	320	275.00
With Switches and Fuse Connections in Mains							
391900	391810	4	28	21	$5\frac{1}{16}$	140	66.00
391901	391811	6	30	21	$5\frac{1}{16}$	150	82.00
391902	391812	8	34	21	$5\frac{1}{16}$	170	92.00
391903	391813	10	36	21	$5\frac{1}{16}$	180	103.00
391904	391814	12	42	21	$5\frac{7}{8}$	200	133.00
391905	391815	14	44	21	$5\frac{7}{8}$	210	145.00
391906	391816	16	48	21	$5\frac{7}{8}$	220	156.00
391907	391817	18	56	23	$5\frac{7}{8}$	235	212.00
391908	391818	20	60	23	$5\frac{7}{8}$	245	226.00
391909	391819	22	62	23	$5\frac{7}{8}$	260	240.00
391910	391820	24	66	23	$5\frac{7}{8}$	275	250.00
391911	391821	26	68	23	$5\frac{7}{8}$	290	262.00
391912	391822	28	72	23	$5\frac{7}{8}$	305	274.00
391913	391823	30	74	23	$5\frac{7}{8}$	315	286.00
391914	391824	32	78	23	$5\frac{7}{8}$	330	298.00

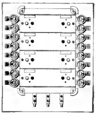
WESTINGHOUSE PANEL BOARDS

TYPE CP PANEL BOARDS

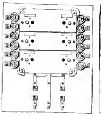
Safety Type with Push Switches
Mains—3 Wire, 125-250 Volts

Branches 2 Wire, 20A Push Switches and Fuse Holders

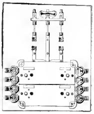
Prices Do Not Include Fuses



Terminal Lugs



Fuse Connections



Switch and Fuse

Plug Fuse Holders Mfrs.No.	Code Fuse Holders Mfrs.No.	No. of Cir.	Dimens. of Cabinets, Inches High	Wide	Deep	Shpg. Wt.Lb.	Price Panels and Cab.
With Terminal Lugs in Mains							
391915	391825	4	18	21	4	115	$60.00
391916	391826	6	22	21	4	125	70.00
391917	391827	8	24	21	4	140	80.00
391918	391828	10	28	21	4	150	91.00
391919	391829	12	32	21	4	165	104.00
391920	391830	14	34	21	4	175	115.00
391921	391831	16	38	21	4	185	125.00
391922	391832	18	40	21	4	195	142.00
391923	391833	20	44	21	4	205	157.00
391924	391834	22	46	21	4	215	172.00
391925	391835	24	50	21	4	225	198.00
391926	391836	26	52	21	4	240	212.00
391927	391837	28	56	21	4	255	234.00
391928	391838	30	58	21	4	275	248.00
391929	391839	32	62	21	4	285	262.00
With Fuse Connections in Mains							
391930	391840	4	20	21	4	135	64.00
391931	391841	6	24	21	4	150	74.00
391932	391842	8	26	21	4	165	85.00
391933	391843	10	30	21	4	175	95.00
391934	391844	12	34	21	4	195	109.00
391935	391845	14	38	21	4	205	120.00
391936	391846	16	40	21	4	215	140.00
391937	391847	18	44	21	4	230	152.00
391938	391848	20	46	21	4	240	162.00
391939	391849	22	52	21	4	250	195.00
391940	391850	24	56	21	4	260	221.00
391941	391851	26	58	21	4	275	235.00
391942	391852	28	62	21	4	300	247.00
391943	391853	30	64	21	4	310	258.00
391944	391854	32	68	21	4	320	270.00
With Switches and Fuse Connections in Mains							
391945	391855	4	28	21	$5\frac{1}{16}$	140	68.00
391946	391856	6	30	21	$5\frac{1}{16}$	150	79.00
391947	391857	8	34	21	$5\frac{1}{16}$	170	89.00
391948	391858	10	36	21	$5\frac{1}{16}$	180	100.00
391949	391859	12	40	21	$5\frac{1}{16}$	200	116.00
391950	391860	14	42	21	$5\frac{1}{16}$	210	136.00
391951	391861	16	46	21	$5\frac{1}{16}$	220	147.00
391952	391862	18	48	21	$5\frac{1}{16}$	235	157.00
391953	391863	20	52	21	$5\frac{7}{8}$	245	176.00
391954	391864	22	56	21	$5\frac{7}{8}$	260	218.00
391955	391865	24	60	21	$5\frac{7}{8}$	275	234.00
391956	391866	26	62	21	$5\frac{7}{8}$	290	246.00
391957	391867	28	66	21	$5\frac{7}{8}$	305	256.00
391958	391868	30	68	21	$5\frac{7}{8}$	315	268.00
391959	391869	32	72	21	$5\frac{7}{8}$	330	280.00

Numbers cover panels and barriers only. Order must give type of cabinet to be furnished, surface or flush, otherwise flush type will be furnished.

A main switch without fuse connections will be furnished at the cost of a switch with fuse connections.

For prices on extra features, see a following page.

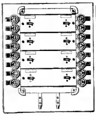
Ampere capacity of mains based on a load of 660 watts per circuit.

WESTINGHOUSE PANEL BOARDS

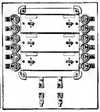
TYPE CT PANEL BOARDS

Safety Type with Tumbler Switches
Mains—2 Wire, 125 Volts
Branches 2 Wire, 20A Tumbler Switch and Fuse Connections

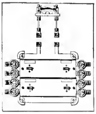
Prices Do Not Include Fuses



Terminal Lugs



Fuse Connections



Switch and Fuse

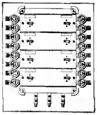
Plug Fuse Holders Mfrs. No.	Code Fuse Holders Mfrs. No.	No. of Cir.	Dimens. of Cabinets, Inches High	Wide	Deep	Shpg. Wt. Lb.	Price Panels and Cab.
With Terminal Lugs in Mains							
391690	391600	4	18	21	4	115	$59.00
391691	391601	6	22	21	4	125	72.00
391962	391602	8	26	21	4	140	83.00
391693	391603	10	28	21	4	150	94.00
391694	391604	12	32	21	4	165	108.00
391695	391605	14	34	21	4	175	119.00
391696	391606	16	38	21	4	185	131.00
391697	391607	18	42	23	4	195	155.00
391698	391608	20	46	23	4	205	166.00
391699	391609	22	48	23	4	215	189.00
391700	391610	24	52	23	4	225	204.00
391701	391611	26	54	23	4	240	225.00
391702	391612	28	58	23	4	255	240.00
391703	391613	30	60	23	4	275	252.00
391704	391614	32	64	23	4	285	263.00
With Fuse Connections in Mains							
391705	391615	4	20	21	4	135	63.00
391706	391616	6	26	21	4	150	77.00
391707	391617	8	28	21	4	165	87.00
391708	391618	10	32	21	4	175	97.00
391709	391619	12	38	21	4	195	116.00
391710	391620	14	40	21	4	205	137.00
391711	391621	16	44	21	4	215	149.00
391712	391622	18	50	23	4	230	178.00
391713	391623	20	52	23	4	240	194.00
391714	391624	22	56	23	4	250	214.00
391715	391625	24	58	23	4	260	230.00
391716	391626	26	62	23	4	275	241.00
391717	391627	28	64	23	4	300	253.00
391718	391628	30	68	23	4	310	264.00
391719	391629	32	70	23	4	320	275.00
With Switches and Fuse Connections in Mains							
391720	391630	4	28	21	$5\frac{1}{16}$	140	66.00
391721	391631	6	30	21	$5\frac{1}{16}$	150	82.00
391722	391632	8	34	21	$5\frac{1}{16}$	170	92.00
391723	391633	10	36	21	$5\frac{1}{16}$	180	103.00
391724	391634	12	42	21	$5\frac{7}{8}$	200	133.00
391725	391635	14	44	21	$5\frac{7}{8}$	210	145.00
391726	391636	16	48	21	$5\frac{7}{8}$	220	156.00
391727	391637	18	56	23	$5\frac{7}{8}$	235	212.00
391728	391638	20	60	23	$5\frac{7}{8}$	245	226.00
391729	391639	22	62	23	$5\frac{7}{8}$	260	240.00
391730	391640	24	66	23	$5\frac{7}{8}$	275	250.00
391731	391641	26	68	23	$5\frac{7}{8}$	290	262.00
391732	391642	28	72	23	$5\frac{7}{8}$	305	274.00
391733	391643	30	74	23	$5\frac{7}{8}$	315	286.00
391734	391644	32	78	23	$5\frac{7}{8}$	330	298.00

WESTINGHOUSE PANEL BOARDS

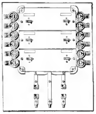
TYPE CT PANEL BOARDS

Safety Type with Tumbler Switches
Mains—3 Wire, 125-250 Volts
Branches 2 Wire, 20A Tumbler Switch and Fuse Holders

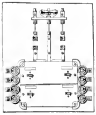
Prices Do Not Include Fuses



Terminal Lugs



Fuse Connections



Switch and Fuse

Plug Fuse Holders Mfrs. No.	Code Fuse Holders Mfrs. No	No. of Cir.	Dimens. of Cabinets, Inches High	Wide	Deep	Shpg Wt. Lb.	Price Panels and Cab
With Terminal Lugs in Mains							
391735	391645	4	18	21	4	115	$60.00
391736	391646	6	22	21	4	125	70.00
391737	391647	8	24	21	4	140	80.00
391738	391648	10	28	21	4	150	91.00
391739	391649	12	32	21	4	165	104.00
391740	391650	14	34	21	4	175	115.00
391741	391651	16	38	21	4	185	125.00
391742	391652	18	40	21	4	195	142.00
391743	391653	20	44	21	4	205	157.00
391744	391654	22	46	21	4	215	172.00
391745	391655	24	50	21	4	225	198.00
391746	391656	26	52	21	4	240	212.00
391747	391657	28	56	21	4	255	234.00
391748	391658	30	58	21	4	275	248.00
391749	391659	32	62	21	4	285	262.00
With Fuse Connections in Mains							
391750	391660	4	20	21	4	135	64.00
391751	391661	6	24	21	4	150	74.00
391752	391662	8	26	21	4	165	85.00
391753	391663	10	30	21	4	175	95.00
391754	391664	12	34	21	4	195	109.00
391755	391665	14	38	21	4	205	120.00
391756	391666	16	40	21	4	215	140.00
391757	391667	18	44	21	4	230	152.00
391758	391668	20	46	21	4	240	162.00
391759	391669	22	52	21	4	250	195.00
391760	391670	24	56	21	4	256	221.00
391761	391671	26	58	21	4	275	235.00
391762	391672	28	62	21	4	300	247.00
391763	391673	30	64	21	4	310	258.00
391764	391674	32	68	21	4	320	270.00
With Switches and Fuse Connections in Mains							
391765	391675	4	28	21	$5\frac{1}{16}$	140	68.00
391766	391676	6	30	21	$5\frac{1}{16}$	150	79.00
391767	391677	8	34	21	$5\frac{1}{16}$	170	89.00
391768	391678	10	36	21	$5\frac{1}{16}$	180	100.00
391769	391679	12	40	21	$5\frac{1}{16}$	200	116.00
391770	391680	14	42	21	$5\frac{1}{16}$	210	136.00
391771	391681	16	46	21	$5\frac{1}{16}$	220	147.00
391772	391682	18	48	21	$5\frac{1}{16}$	235	157.00
391773	391683	20	52	21	$5\frac{7}{8}$	245	176.00
391774	391684	22	56	21	$5\frac{7}{8}$	260	218.00
391775	391685	24	60	21	$5\frac{7}{8}$	270	234.00
391776	391686	26	62	21	$5\frac{7}{8}$	290	246.00
391777	391687	28	66	21	$5\frac{7}{8}$	305	256.00
391778	391688	30	68	21	$5\frac{7}{8}$	315	268.00
391779	391689	32	72	21	$5\frac{7}{8}$	330	280.00

Numbers cover panels and barriers only. Order must give type of cabinet to be furnished, surface or flush, otherwise flush type will be furnished.

A main switch without fuse connections will be furnished at the cost of a switch with fuse connections.

For prices on extra features, see a following page.

Ampere capacity of mains based on a load of 660 watts per circuit.

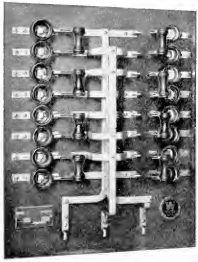
WESTINGHOUSE PANEL BOARDS

TYPE W PANEL BOARDS—LIVE FACE

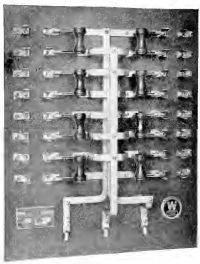
Underwriters Inspected

With Plug or Code Fuse Connections

WF—With Fuse Connections Only in Branches
WB—With Baby Knife Switches in Branches
WT—With 20A Tumbler Switches in Branches
WP—With 20A Push Switches in Branches



Type WB Panelboard No. 384542



Type WB Panelboard No. 384557

New and important improvements have recently been made in the design of the type W panel board line which affects the size of the panel and cabinet. The revised data covers the changes in size of cabinets.

Past experience of our sales and engineering departments has demonstrated that improvements in the design of our live face panel board line should be made. Changes in manufacturing conditions have made it possible to improve the design of the panel boards and offer a very high grade panel board at an exceptionally low price when the quality of the product is considered.

All circuit parts are interchangeable so that a plug fuse connection may be replaced with clips for enclosed cartridge fuses.

All main bus bars and circuit parts are removable from the front and secured to the slate panel by means of screw anchors and machine screws. This makes it easy to quickly replace or change a circuit part.

Heretofore, to remove a damaged part from a panel board it has been necessary to disconnect the wires, remove the panel from the cabinet and remove the cement from the countersunk holes on the back of the panel before the holding screws could be taken from the part to be replaced. The part is then replaced with a new one, the mounting screws replaced, the countersunk holes cemented up, the panel replaced in the cabinet, finally the circuit and main feed wires connected to the panel.

These disadvantages have been entirely eliminated by the Westinghouse type W panel board.

In many designs of panel boards, the screw holes are drilled through the slate and countersunk from ⅝ to ½ inch from the back of the slate. This practice increases the danger of breakage in transit and installing. The use of screw anchors for securing circuit parts to the panel board from the front results in a strong slate panel that will withstand rough handling.

The superimposed arrangement of the main bus bars gives a pleasing appearance to the panel board. The neutral or grounded bus bar is placed over the other bus bars protecting them from accidental short circuits and the operator from unintentional contact with the ungrounded sides of the line. This feature also reduces the width of the panel board to a minimum.

Bus bars have been designed to limit the cross sectional area of any main or branch bus bar to a minimum of ½ inch wide and ⅛ inch thick. The heavy copper gives the conductivity necessary for some of the heavy duty panel board for small power application and gives the rugged substantial construction desired by the best architects and engineers. Break jaws of all baby knife switches are swedged into the branch circuit bus bars making a continual connection without a joint from the main bus bars to the switch blade.

The Salient Features of the Type W Lines Are:

1—Parts removable from the front of the panel board.

2—Bus bars superimposed affording protection from accidental contact with and short circuiting of live bus bars.

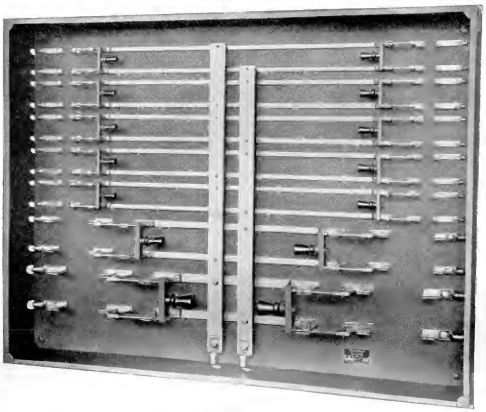
3—No screws carrying current, all contacts are clamped.

4—Minimum number of contacts in branch circuit connections.

5—No circuit screw holes drilled through the slate and no sealing cement used on branch circuit parts. High insulation and no exposed screws on the back of the panel because of insulating cement having been lost.

WESTINGHOUSE PANEL BOARDS

SPECIAL POWER DISTRIBUTION PANEL BOARDS



We have both engineering and productive facilities to furnish any special panel board required.

Workmanship, appearance and convenient operation are carefully considered in the design and construction of these panel boards.

Distribution and switching apparatus is so closely related to the electrical heating, power and lighting problems that it is advisable to consult an engineer experienced in all lines when preparing specifications and laying out the electrical work for a building.

Our engineers are highly trained and have many years of practical experience in handling these electrical problems. Consequently you will be greatly benefited by the assistance they can give you.

Ask our panel board engineer for his assistance in solving your electrical distribution problems.

BENJAMIN-STARRETT STANDARDIZED PANEL BOARDS

National Electrical Code Standard

TYPE DCT DEAD FRONT PANELS WITH BARRIERS AND CABINETS

Branches Have 20 Ampere Tumbler Switches Arranged For Cartridge Fuses

2 WIRE MAINS
125 VOLT
2 WIRE BRANCHES

No. of Circuits	Capacity Main Connec. Amperes	Panel and Barrier With Surface Cabinet Three Inch Gutter Mfrs. No.	Surface Cabinet Three Inch Gutter Price Each	Flush Cabinet Three Inch Gutter Mfrs. No.	Flush Cabinet Three Inch Gutter Price Each	Box Dimens., In. Width, Outside	Box Dimens., In. Hght., Outside	Box Dimens., In. Dpth., Inside	Approx. Shipping Wt. Lbs.
PANELS WITH MAIN LUGS ONLY									
4	30	84203	$34.60	84233	$34.60	18	17½	5¼	80
6	60	84205	41.80	84235	41.80	18	20½	5¼	92
8	60	84207	49.50	84237	49.50	18	23½	5¼	104
10	60	84209	56.00	84239	56.00	18	26½	5¼	116
12	100	84211	64.10	84241	64.10	18	29½	5¼	128
14	100	84213	72.00	84243	72.00	18	32½	5¼	140
16	100	84215	78.60	84245	78.60	18	35½	5¼	153
18	200	84217	87.60	84247	87.60	18	38½	5¼	165
20	200	84219	94.50	84249	94.50	18	41½	5¼	189
22	200	84221	104.80	84251	104.80	18	44½	5¼	202
24	200	84223	111.50	84253	111.50	18	47½	5¼	215
26	200	84225	119.40	84255	119.40	18	50½	5¼	227
28	200	84227	126.50	84257	126.50	18	53½	5¼	241
30	200	84229	134.10	84259	134.10	18	56½	5¼	253
PANELS WITH FUSIBLE MAINS									
4	30	85203	37.90	85233	37.90	18	20	5¼	89
6	60	85205	46.10	85235	46.10	18	24	5¼	106
8	60	85207	52.90	85237	52.90	18	27	5¼	118
10	60	85209	60.30	85239	60.30	18	30	5¼	130
12	100	85211	71.00	85241	71.00	18	37	5¼	157
14	100	85213	78.90	85243	78.90	18	40	5¼	181
16	100	85215	85.60	85245	85.60	18	43	5¼	194
18	200	85217	100.20	85247	100.20	18	48	5¼	215
20	200	85219	107.20	85249	107.20	18	51	5¼	227
22	200	85221	115.20	85251	115.20	18	54	5¼	240
24	200	85223	122.00	85253	122.00	18	57	5¼	253
26	200	85225	129.90	85255	129.90	18	60	5¼	291
28	200	85227	136.90	85257	136.90	18	63	5¼	305
30	200	85229	144.60	85259	144.60	18	66	5¼	319
PANELS WITH FUSELESS MAIN SWITCH									
4	30	86203	43.80	86233	43.80	18	25	5¼	112
6	60	86205	52.80	86235	52.80	18	30	5¼	133
8	60	86207	60.40	86237	60.40	18	33	5¼	145
10	60	86209	66.90	86239	66.90	18	36	5¼	157
12	100	86211	78.90	86241	78.90	18	41	5¼	190
14	100	86213	86.20	86243	86.20	18	44	5¼	202
16	100	86215	96.20	86245	96.20	18	47	5¼	215
18	200	86217	113.80	86247	113.80	18	54	5¼	239
20	200	86219	121.70	86249	121.70	18	57	5¼	252
22	200	86221	129.10	86251	129.10	18	60	5¼	290
24	200	86223	137.00	86253	137.00	18	63	5¼	304
26	200	86225	144.30	86255	144.30	18	66	5¼	317
28	200	86227	152.30	86257	152.30	18	69	5¼	331
30	200	86229	159.40	86259	159.40	18	72	5¼	345
PANELS WITH FUSIBLE MAIN SWITCH									
4	30	87203	45.20	87233	45.20	18	25	5¼	112
6	60	87205	54.20	87235	54.20	18	30	5¼	133
8	60	87207	61.80	87237	61.80	18	33	5¼	145
10	60	87209	68.30	87239	68.30	18	36	5¼	157
12	100	87211	83.50	87241	83.50	18	43	5¼	194
14	100	87213	94.10	87243	94.10	18	46	5¼	207
16	100	87215	100.70	87245	100.70	18	49	5¼	220
18	200	87217	120.90	87247	120.90	18	56	6	253
20	200	87219	128.80	87249	128.80	18	59	6	266
22	200	87221	136.10	87251	136.10	18	62	6	306
24	200	87223	144.10	87253	144.10	18	65	6	320
26	200	87225	151.30	87255	151.30	18	68	6	334
28	200	87227	159.40	87257	159.40	18	71	6	349
30	200	87229	166.60	87259	166.60	18	74	6	363

Note: See introductory page on Benjamin-Starrett Standardized Panel Boards for description, construction, etc.

BENJAMIN-STARRETT STANDARDIZED PANEL BOARDS

National Electrical Code Standard

TYPE DCT DEAD FRONT PANELS WITH BARRIERS AND CABINETS

Branches Have 20 Ampere Tumbler Switches Arranged For Cartridge Fuses

3 WIRE MAINS
125 VOLT
2 WIRE BRANCHES

No. of Circuits	Capacity Main Connec. Amperes	Panel and Barrier With Surface Cabinet Three Inch Gutter Mfrs. No.	Surface Cabinet Three Inch Gutter Price Each	Flush Cabinet Three Inch Gutter Mfrs. No.	Flush Cabinet Three Inch Gutter Price Each	Box Dimens., In. Width. Outside	Box Dimens., In. Hght. Outside	Box Dimens., In. Dpth. Inside	Approx. Shipping Wt. Lbs.
			PANELS WITH MAIN LUGS ONLY						
4	30	84703	$35.00	84733	$35.00	18	17 1/2	5 1/4	80
6	30	84705	42.60	84735	42.60	18	20 1/2	5 1/4	92
8	30	84707	50.60	84737	50.60	18	23 1/2	5 1/4	104
10	30	84709	57.50	84739	57.50	18	26 1/2	5 1/4	116
12	60	84711	65.40	84741	65.40	18	29 1/2	5 1/4	128
14	60	84713	72.40	84743	72.40	18	32 1/2	5 1/4	140
16	60	84715	80.20	84745	80.20	18	35 1/2	5 1/4	153
18	60	84717	87.00	84747	87.00	18	38 1/2	5 1/4	165
20	60	84719	94.70	84749	94.70	18	41 1/2	5 1/4	189
22	100	84721	106.50	84751	106.50	18	44 1/2	5 1/4	202
24	100	84723	113.50	84753	113.50	18	47 1/2	5 1/4	215
26	100	84725	121.40	84755	121.40	18	50 1/2	5 1/4	227
28	100	84727	128.50	84757	128.50	18	53 1/2	5 1/4	241
30	100	84729	136.20	84759	136.20	18	56 1/2	5 1/4	253
			PANELS WITH FUSIBLE MAINS						
4	30	85703	38.70	85733	38.70	18	20	5 1/4	89
6	30	85705	44.20	85735	44.20	18	23	5 1/4	101
8	30	85707	54.20	85737	54.20	18	26	5 1/4	113
10	30	85709	61.20	85739	61.20	18	29	5 1/4	125
12	60	85711	70.70	85741	70.70	18	33	5 1/4	143
14	60	85713	77.50	85743	77.50	18	36	5 1/4	165
16	60	85715	85.20	85745	85.20	18	39	5 1/4	178
18	60	85717	91.80	85747	91.80	18	42	5 1/4	191
20	60	85719	102.60	85749	102.60	18	45	5 1/4	204
22	100	85721	115.10	85751	115.10	18	52	5 1/4	233
24	100	85723	122.40	85753	122.40	18	55	5 1/4	245
26	100	85725	130.20	85755	130.20	18	58	5 1/4	274
28	100	85727	137.20	85757	137.20	18	61	5 1/4	297
30	100	85729	145.00	85759	145.00	18	64	5 1/4	311
			PANELS WITH FUSELESS MAIN SWITCH						
4	30	86703	46.00	86733	46.00	18	25	5 1/4	113
6	30	86705	53.50	86735	53.50	18	28	5 1/4	125
8	30	86707	61.50	86737	61.50	18	31	5 1/4	137
10	30	86709	68.30	86739	68.30	18	34	5 1/4	149
12	60	86711	79.00	86741	79.00	18	39	5 1/4	182
14	60	86713	85.80	86743	85.80	18	42	5 1/4	194
16	60	86715	93.60	86745	93.60	18	45	5 1/4	207
18	60	86717	103.10	86747	103.10	18	48	5 1/4	220
20	60	86719	111.00	86749	111.00	18	51	5 1/4	233
22	100	86721	125.20	86751	125.20	18	56	5 1/4	254
24	100	86723	133.10	86753	133.10	18	59	5 1/4	292
26	100	86725	140.20	86755	140.20	18	62	5 1/4	306
28	100	86727	148.00	86757	148.00	18	65	5 1/4	320
30	100	86729	155.00	86759	155.00	18	68	5 1/4	334
			PANELS WITH FUSIBLE MAIN SWITCH						
4	30	87703	48.10	87733	48.10	18	25	5 1/4	113
6	30	87705	55.60	87735	55.60	18	28	5 1/4	125
8	30	87707	63.60	87737	63.60	18	31	5 1/4	137
10	30	87709	70.40	87739	70.40	18	34	5 1/4	149
12	60	87711	81.10	87741	81.10	18	39	5 1/4	182
14	60	87713	87.90	87743	87.90	18	42	5 1/4	194
16	60	87715	95.70	87745	95.70	18	45	5 1/4	207
18	60	87717	105.20	87747	105.20	18	48	5 1/4	220
20	60	87719	113.10	87749	113.10	18	51	5 1/4	233
22	100	87721	132.20	87751	132.20	18	58	5 1/4	259
24	100	87723	139.40	87753	139.40	18	61	5 1/4	298
26	100	87725	147.30	87755	147.30	18	64	5 1/4	311
28	100	87727	154.30	87757	154.30	18	67	5 1/4	326
30	100	87729	162.00	87759	162.00	18	70	5 1/4	340

Note: See introductory page on Benjamin-Starrett Standardized Panel Boards for description, construction, etc.

BENJAMIN-STARRETT STANDARDIZED PANEL BOARDS

National Electrical Code Standard

TYPE DPT DEAD FRONT PANELS WITH BARRIERS AND CABINETS

Branches Have 20 Ampere Tumbler Switches Arranged For *Edison Plug Fuses

2 WIRE MAINS
125 VOLT
2 WIRE BRANCHES

No. of Circuits	Capacity Main Connec. Amperes	Panel and Barrier With Surface Cabinet Three Inch Gutter Mfrs. No.	Surface Cabinet Three Inch Gutter Price Each	Flush Cabinet Three Inch Gutter Mfrs. No	Flush Cabinet Three Inch Gutter Price Each	Box Dimens., In. Wdth. Out-side	Hght. Out-side	Dpth. In-side	Approx. Shipping Wt. Lbs
PANELS WITH MAIN LUGS ONLY									
4	30	80203	$34.60	80233	$34.60	18	17½	5¼	80
6	60	80205	41.80	80235	41.80	18	20½	5¼	92
8	60	80207	49.50	80237	49.50	18	23½	5¼	104
10	60	80209	56.00	80239	56.00	18	26½	5¼	116
12	100	80211	64.10	80241	64.10	18	29½	5¼	128
14	100	80213	72.00	80243	72.00	18	32½	5¼	140
16	100	80215	78.60	80245	78.60	18	35½	5¼	153
18	200	80217	87.60	80247	87.60	18	38½	5¼	165
20	200	80219	94.50	80249	94.50	18	41½	5¼	189
22	200	80221	104.80	80251	104.80	18	44½	5¼	202
24	200	80223	111.50	80253	111.50	18	47½	5¼	215
26	200	80225	119.40	80255	119.40	18	50½	5¼	227
28	200	80227	126.50	80257	126.50	18	53½	5¼	241
30	200	80229	134.10	80259	134.10	18	56½	5¼	253
PANELS WITH FUSIBLE MAINS									
4	30	81203	37.90	81233	37.90	18	20	5¼	89
6	60	81205	46.10	81235	46.10	18	24	5¼	106
8	60	81207	52.90	81237	52.90	18	27	5¼	118
10	60	81209	60.30	81239	60.30	18	30	5¼	130
12	100	81211	71.00	81241	71.00	18	37	5¼	157
14	100	81213	78.90	81243	78.90	18	40	5¼	181
16	100	81215	85.60	81245	85.60	18	43	5¼	194
18	200	81217	100.20	81247	100.20	18	48	5¼	215
20	200	81219	107.20	81249	107.20	18	51	5¼	227
22	200	81221	115.20	81251	115.20	18	54	5¼	240
24	200	81223	122.00	81253	122.00	18	57	5¼	253
26	200	81225	129.90	81255	129.90	18	60	5¼	291
28	200	81227	136.90	81257	136.90	18	63	5¼	305
30	200	81229	144.60	81259	144.60	18	66	5¼	319
PANELS WITH FUSELESS MAIN SWITCH									
4	30	82203	43.80	82233	43.80	18	25	5¼	112
6	60	82205	52.80	82235	52.80	18	30	5¼	133
8	60	82207	60.40	82237	60.40	18	33	5¼	145
10	60	82209	66.90	82239	66.90	18	36	5¼	157
12	100	82211	78.90	82241	78.90	18	41	5¼	190
14	100	82213	86.20	82243	86.20	18	44	5¼	202
16	100	82215	96.20	82245	96.20	18	47	5¼	215
18	200	82217	113.80	82247	113.80	18	54	5¼	239
20	200	82219	121.70	82249	121.70	18	57	5¼	252
22	200	82221	129.10	82251	129.10	18	60	5¼	290
24	200	82223	137.00	82253	137.00	18	63	5¼	304
26	200	82225	144.30	82255	144.30	18	66	5¼	317
28	200	82227	152.30	82257	152.30	18	69	5¼	331
30	200	82229	159.40	82259	159.40	18	72	5¼	345
PANELS WITH FUSIBLE MAIN SWITCH									
4	30	83203	45.20	83233	45.20	18	25	5¼	112
6	60	83205	54.20	83235	54.20	18	30	5¼	133
8	60	83207	61.80	83237	61.80	18	33	5¼	145
10	60	83209	68.30	83239	68.30	18	36	5¼	157
12	100	83211	83.50	83241	83.50	18	43	5¼	194
14	100	83213	94.10	83243	94.10	18	46	5¼	207
16	100	83215	100.70	83245	100.70	18	49	5¼	220
18	200	83217	120.90	83247	120.90	18	56	6	253
20	200	83219	128.80	83249	128.80	18	59	6	266
22	200	83221	136.10	83251	136.10	18	62	6	306
24	200	83223	144.10	83253	144.10	18	65	6	320
26	200	83225	151.30	83255	151.30	18	68	6	334
28	200	83227	159.40	83257	159.40	18	71	6	349
30	200	83229	166.60	83259	166.60	18	74	6	363

Note: See introductory page on Benjamin-Starrett Standardized Panel Boards for description, construction, etc.

*Cartridge fuses can be furnished in branches if desired, without change in price.

BENJAMIN-STARRETT STANDARDIZED PANEL BOARDS

National Electrical Code Standard

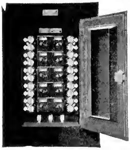
TYPE DPT DEAD FRONT PANELS WITH BARRIERS AND CABINETS

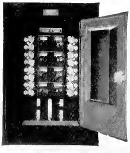
Branches Have 20 Ampere Tumbler Switches Arranged For *Edison Plug Fuses

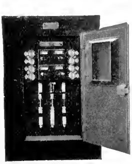
3 WIRE MAINS

125 VOLT

2 WIRE BRANCHES







No. of Circuits	Capacity Main Connec. Amperes	Panel and Barrier With Surface Cabinet Three Inch Gutter Mfrs. No.	Surface Cabinet Price Each	Flush Cabinet Three Inch Gutter Mfrs. No.	Flush Cabinet Price Each	Box Dimens., In. Wdth. Outside	Hght. Outside	Dpth. Inside	Approx. Shipping Wt. Lbs.
PANELS WITH MAIN LUGS ONLY									
4	30	**80703**	$35.00	**80733**	$35.00	18	17½	5¼	80
6	30	**80705**	42.60	**80735**	42.60	18	20½	5¼	92
8	30	**80707**	50.60	**80737**	50.60	18	23½	5¼	104
10	30	**80709**	57.50	**80739**	57.50	18	26½	5¼	116
12	60	**80711**	65.40	**80741**	65.40	18	29½	5¼	128
14	60	**80713**	72.40	**80743**	72.40	18	32½	5¼	140
16	60	**80715**	80.20	**80745**	80.20	18	35½	5¼	153
18	60	**80717**	87.00	**80747**	87.00	18	38½	5¼	165
20	60	**80719**	94.70	**80749**	94.70	18	41½	5¼	189
22	100	**80721**	106.50	**80751**	106.50	18	44½	5¼	202
24	100	**80723**	113.50	**80753**	113.50	18	47½	5¼	215
26	100	**80725**	121.40	**80755**	121.40	18	50½	5¼	227
28	100	**80727**	128.50	**80757**	128.50	18	53½	5¼	241
30	100	**80729**	136.20	**80759**	136.20	18	56½	5¼	253
PANELS WITH FUSIBLE MAINS									
4	30	**81703**	38.70	**81733**	38.70	18	20	5¼	89
6	30	**81705**	44.20	**81735**	44.20	18	23	5¼	101
8	30	**81707**	54.20	**81737**	54.20	18	26	5¼	113
10	30	**81709**	61.20	**81739**	61.20	18	29	5¼	125
12	60	**81711**	70.70	**81741**	70.70	18	33	5¼	143
14	60	**81713**	77.50	**81743**	77.50	18	36	5¼	165
16	60	**81715**	85.20	**81745**	85.20	18	39	5¼	178
18	60	**81717**	91.80	**81747**	91.80	18	42	5¼	191
20	60	**81719**	102.60	**81749**	102.60	18	45	5¼	204
22	100	**81721**	115.10	**81751**	115.10	18	52	5¼	233
24	100	**81723**	122.40	**81753**	122.40	18	55	5¼	245
26	100	**81725**	130.20	**81755**	130.20	18	58	5¼	274
28	100	**81727**	137.20	**81757**	137.20	18	61	5¼	297
30	100	**81729**	145.00	**81759**	145.00	18	64	5¼	311
PANELS WITH FUSELESS MAIN SWITCH									
4	30	**82703**	46.00	**82733**	46.00	18	25	5¼	113
6	30	**82705**	53.50	**82735**	53.50	18	28	5¼	125
8	30	**82707**	61.50	**82737**	61.50	18	31	5¼	137
10	30	**82709**	68.30	**82739**	68.30	18	34	5¼	149
12	60	**82711**	79.00	**82741**	79.00	18	39	5¼	182
14	60	**82713**	85.80	**82743**	85.80	18	42	5¼	194
16	60	**82715**	93.60	**82745**	93.60	18	45	5¼	207
18	60	**82717**	103.10	**82747**	103.10	18	48	5¼	220
20	60	**82719**	111.00	**82749**	111.00	18	51	5¼	233
22	100	**82721**	125.20	**82751**	125.20	18	56	5¼	254
24	100	**82723**	133.10	**82753**	133.10	18	59	5¼	292
26	100	**82725**	140.20	**82755**	140.20	18	62	5¼	306
28	100	**82727**	148.00	**82757**	148.00	18	65	5¼	320
30	100	**82729**	155.00	**82759**	155.00	18	68	5¼	334
PANELS WITH FUSIBLE MAIN SWITCH									
4	30	**83703**	48.10	**83733**	48.10	18	25	5¼	113
6	30	**83705**	55.60	**83735**	55.60	18	28	5¼	125
8	30	**83707**	63.60	**83737**	63.60	18	31	5¼	137
10	30	**83709**	70.40	**83739**	70.40	18	34	5¼	149
12	60	**83711**	81.10	**83741**	81.10	18	39	5¼	182
14	60	**83713**	87.90	**83743**	87.90	18	42	5¼	194
16	60	**83715**	95.70	**83745**	95.70	18	45	5¼	207
18	60	**83717**	105.20	**83747**	105.20	18	48	5¼	220
20	60	**83719**	113.10	**83749**	113.10	18	51	5¼	233
22	100	**83721**	132.20	**83751**	132.20	18	58	5¼	259
24	100	**83723**	139.40	**83753**	139.40	18	61	5¼	298
26	100	**83725**	147.30	**83755**	147.30	18	64	5¼	311
28	100	**83727**	154.30	**83757**	154.30	18	67	5¼	326
30	100	**83729**	162.00	**83759**	162.00	18	70	5¼	340

Note: See introductory page on Benjamin-Starrett Standardized Panel Boards for description, construction, etc.

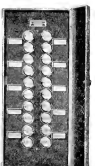
*Cartridge fuses can be furnished in branches if desired, without change in price.

BENJAMIN-STARRETT RESIDENCE PANEL BOARDS

National Electrical Code Standard

DEAD FRONT—RESIDENCE PANELS WITH CABINETS

Type RDF—Shown In Flush Cabinet



Type RDL—Shown in Surface Cabinet

In residence panel board design there is a growing demand for safety features for the protection of those who, having little or no knowledge of electrical equipment, fear to change a fuse or throw a switch.

State and Municipal Electrical Codes are prescribing safety measures for the full protection of users of electricity. The Benjamin-Starrett Residence Panel was developed to meet these requirements, and to its dead-front or safety features there is added an ease of manipulation, a finished appearance and a ruggedness of structure which have received the hearty approval of engineers and contractors everywhere.

TYPE RDF—WITH FUSIBLE TUMBLER SWITCH IN MAINS

Mains—2 or 3-wire, 125 Volts

Branches—2-wire, Are Arranged for Edison Plug Fuses Only

2-wire Mains, 125 Volts

No. of Ckts.	Capacity Main Connect. Amps.	Panel With Surface Cabinet Flanged Door Mfrs. No	Price Each	Flush Cabinet Plain Front Mfrs. No	Price Each	Box Dimensions, In. Width Outside	Height Outside	Depth Inside	Approx. Ship Wt. Lbs.
2	30	**78471**	$15.30	**79471**	$19.80	16½	8¾	4½	34
3	30	**78472**	15.50	**79472**	20.00	19½	8¾	4½	41
4	30	**78473**	17.40	**79473**	22.20	19½	8¾	4½	41
5	30	**78474**	18.70	**79474**	23.60	22½	8¼	4½	48
				3-wire Mains, 125 Volts					
4	30	78573	20.60	79573	25.30	19½	8¾	4½	41
6	30	78575	21.00	79575	25.70	22½	8¼	4½	48
8	30	78577	24.00	79577	29.00	25½	8¼	4½	55
10	30	78579	26.50	79579	31.60	28½	8¼	4½	62

TYPE RDL—WITH LUGS ONLY IN MAINS

Mains—2 or 3-wire, 125 Volts

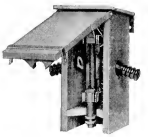
Branches—2-wire, Are Arranged for Edison Plug Fuses Only

2-wire Mains, 125 Volts

No. of Ckts.	Capacity Main Connect. Amps.	Panel With Surface Cabinet Flanged Door Mfrs. No	Price Each	Flush Cabinet Plain Front Mfrs. No	Price Each	Box Dimensions, In. Width Outside	Height Outside	Depth Inside	Approx. Ship Wt. Lbs.
4	30	**78673**	$13.90	**79673**	$18.80	8½	12	3¾	27
6	60	**78675**	16.50	**79675**	21.30	8½	15	3¾	34
8	60	**78677**	19.40	**79677**	24.20	8½	18	3¾	41
10	60	**78679**	21.60	**79679**	26.40	8½	21	3¾	48
				3-wire Mains, 125 Volts					
4	30	**78773**	14.20	**79773**	19.00	8½	12	3¾	27
6	30	**78775**	16.70	**79775**	21.50	8½	15	3¾	34
8	30	**78777**	19.70	**79777**	24.50	8½	18	3¾	41
10	30	**78779**	22.10	**79779**	26.90	8½	21	3¾	48

MATTHEWS FUSWITCHES

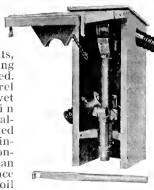
For 7500 Volts or Less—200 Amperes or Less



TYPE OK

Has double barrel vacuum fuse cartridge; wet process porcelain throughout; extra quality horn fibre; cypress box. Can be inspected without disconnecting cartridge. Designed to prevent wet flashover or leakage under 30,000 volts. Rupturing capacity unlimited.

Type	Volts	Amp.	Shpg. Wt.Lb.	Price Each
OK	7500	100	18	**$21.50**
Extra Fuswitch Cartridges				**12.00**
Extra Fuses Any Size to 100 Amperes				**.50**
Extra Insulator Bushings				**1.20**
Extra Base Assembly without Cartridge				**13.00**



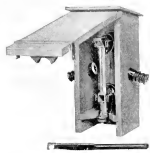
TYPE HQ

Is rated 7,500 volts, 200 amperes, rupturing capacity unlimited. Has new double barrel vacuum cartridge; wet process porcelain throughout; extra quality horn fibre; patented cypress box. Can be inspected without disconnecting cartridge. It can be safely used in place of higher priced oil switches. Will stand an indefinite number of shots. Rupturing capacity unlimited.

All spacings, fibre and porcelain have been designed to prevent wet flashover or leakage under 37,500 volts—5 times its rating.

Type	Volts	Amp.	Shpg. Wt.Lb.	Price Each
HQ	7500	200	25	**$38.00**
Extra Fuswitch Cartridges				**18.00**
Extra Fuses Any Size Up to 200 Amperes				**.50**
Extra Insulator Bushings				**1.20**
Extra Base Assembly without Cartridge				**22.00**

MATTHEWS DISCONNECTING SWITCHES



TYPES OK AND HQ

Same as types OK and HQ Fuswitches except that solid metal blade is furnished instead of fuse cartridge. Can be converted to type OK or HQ by substituting cartridge for metal blade.

Type	Volts	Amp.	Shpg. Wt.Lb.	Price Each
OK	2500	100	18	**$21.50**
HQ	7500	250	23½	**31.00**
OK Extra Blades				**9.00**
HQ Extra Blades and Partition				**7.00**

Sheet copper covered ply wood roofs can be furnished for **$2.00** additional to above prices on Fuswitches and Disconnecting Switches types OK and HQ.

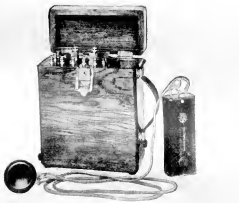
MATTHEWS FUSWITCHES

OPEN TYPE

Rated 15,000 volts, 100 amperes. All metal parts are thoroughly weatherproofed. The cartridge tube is weatherproof on the outside and lined on the inside with best grade of seasoned horn fibre. Frame may be strapped or bolted on cross arm. Cartridge blade has length between contacts of 14 inches.

Type	Volts	Amps.	Shpg. Wt.Lb.	Price Each
Open	15,000	100	20	**$22.00**
Extra Fuswitch Cartridges				**15.00**
Extra Fuses, any size up to 60 Amperes				**.50**
Extra Insulator Assembly, Upper or Lower				**6.00**
Safety Fuse Puller, 5 Feet Long				**6.00**

MATTHEWS WOODPECKER TELEFAULTS



TYPE L

For use on telephone, telegraph or signal cable. A simple, self-contained instrument that will exactly locate water in cables, shorts of all kinds in cables, crosses, grounds, split pairs, in fact everything except opens. Only used on dry cell battery. Maximum voltage under 5 volts. Does not noise up other working pairs, because of the inductive field created. It cannot be confused, as the noise is not a humming one. Shipped by express unless otherwise specified.

Description	Shipping Wt., Lbs.	Price Each
Telefault complete	8	**$132.00**
Extra Exploring Coil	2	**30.00**
Extra Receiver	1	**8.00**

No batteries furnished.

ANSONIA PUSH BUTTONS

LOOSE BACKS

Wrought bronze; moisture proof backs; nickel silver contacts.

Size, 2x4¾ Inches

Mfrs. No.	Finish	Price Per Dozen
528	Polished Bronze	**$12.00**
528PB	Polished Brass	**12.00**
528BB	Brush Brass	**12.00**
528AC	Antique Copper	**12.00**

Weight Standard Package, 38 Lbs.
25 in a Carton, 150 in a Standard Package.

Wrought bronze; long pattern, with rounded edges; nickel silver contacts.

Size, 2x4 Inches

Mfrs. No	Finish	Price Per Dozen
529	Polished Bronze	**$12.00**
529PB	Polished Brass	**12.00**
529BB	Brush Brass	**12.00**
529AC	Antique Copper	**12.00**

Weight Standard Package, 34 Lbs.
25 in a Carton; 150 in a Standard Package.

Wrought bronze; plain oval pattern; nickel silver contacts.

Size, 2x4 Inches

Mfrs. No.	Finish	Price Per Dozen
530	Polished Bronze	**$12.00**
530PB	Polished Brass	**12.00**
530BB	Brush Brass	**12.00**
530AC	Antique Copper	**12.00**

Weight Standard Package, 31 Lbs.
25 in a Carton, 150 in a Standard Package.

Wrought bronze; nickel silver contacts.

Size, 2x4¼ Inches

Mfrs. No.	Finish	Price Per Dozen
531	Polished Bronze	**$12.00**
531PB	Polished Brass	**12.00**
531BB	Brush Brass	**12.00**
531AC	Antique Copper	**12.00**

Weight Standard Package, 33 Lbs.
25 in a Carton, 150 in a Standard Package.

Wrought bronze; nickel silver contacts.

Size, 2x4 Inches

Mfrs. No.	Finish	Price Per Dozen
532	Polished Bronze	**$12.00**
532PB	Polished Brass	**12.00**
532BB	Brush Brass	**12.00**
532AC	Antique Copper	**12.00**

Weight Standard Package, 33 Lbs.
25 in a Carton, 150 in a Standard Package.

Oval pattern; wrought bronze; moisture proof backs; nickel silver contacts.

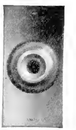
Size, 2x4 Inches

Mfrs. No.	Finish	Price Per Dozen
534	Polished Bronze	**$12.00**
534PB	Polished Brass	**12.00**
534BB	Brush Brass	**12.00**
534AC	Antique Copper	**12.00**

Weight Standard Package, 31 Lbs.
25 in a Carton, 150 in a Standard Package.

ANSONIA PUSH BUTTONS

LOOSE BACKS

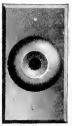


Wrought bronze; square edge; heavy plate; stamped shell; nickel silver contacts.

Size, 2x4 Inches

Mfrs. No.	Finish	Price Per Dozen
536	Polished Bronze	**$14.40**
536PB	Polished Brass	**14.40**
536BB	Brush Brass	**14.40**
536AC	Antique Copper	**14.40**

Weight Standard Package, 34 Lbs.
25 in a Carton; 150 in a Standard Package.



Beveled edge; cast plate; nickel silver contacts.

Size, 2⅜x4¼ Inches

Mfrs. No	Finish	Price Per Dozen
538	Polished Bronze	**$24.00**
538PB	Polished Brass	**24.00**
538BB	Brush Brass	**24.00**
538AC	Antique Copper	**24.00**

Weight Standard Package, 18 Lbs.
10 in a Carton; 150 in a Standard Package.

Size, 1⅜x4 Inches

Mfrs. No.		Price Per Dozen
548	Polished Bronze	**$9.60**
548PB	Polished Brass	**9.60**
548BB	Brush Brass	**9.60**
548AC	Antique Copper	**9.60**

10 in a Carton; 100 in a Standard Package.

Heavy solid plate; beveled edge; bronze pushes nickel silver contacts.

Size, 2x4 Inches

With Single Name Plate

Mfrs. No.	Finish	Price Per Dozen
544	Polished Bronze	**$16.80**
544PB	Polished Brass	**16.80**
544BB	Brush Brass	**16.80**
544AC	Antique Copper	**16.80**

Weight Standard Package, 35 Lbs.
10 in a Unit Package, 100 in a Standard Package.

Size, 2x6 Inches

With Double Name Plates and Pushes

Mfrs. No.	Finish	Price Per Dozen
545	Polished Bronze	**$26.40**
545PB	Polished Brass	**26.40**
545BB	Brush Brass	**26.40**
545AC	Antique Copper	**26.40**

Weight Standard Package, 50 Lbs.
10 in a Carton, 100 in a Standard Package.

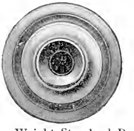
Heavy solid plate, bronze; square edge; nickel silver contacts.

Size, 4½x1⅜ Inches

Mfrs. No.	Finish	Price Per Dozen
547	Polished Bronze	**$21.60**
547PB	Polished Brass	**21.60**
547BB	Brush Brass	**21.60**
547AC	Antique Copper	**21.60**

Weight Standard Package, 34 Lbs.
10 in a Carton, 100 in a Standard Package.

ANSONIA PUSH BUTTONS
SCREW CAPS



Cast bronze; nickel silver contacts.

Diameter, 2⅛ Inches

Mfrs. No.	Finish	Price Per Doz.
550	Polished Bronze	**$10.80**
550AC	Antique Copper	**10.80**
550BB	Brushed Brass	**10.80**

Weight Standard Package, 24 Lbs.
25 in a Carton; 100 in a Standard Package.

LOOSE BACKS

Cast bronze; heavy moistureproof fibre backs; nickel silver contacts; black composition rubber buttons.

Diameter, 2¼ Inches

Mfrs. No.	Finish	Price Per Doz.
540	Polished Bronze	**$7.20**
540B	Black Inlaid	**7.20**

Weight Standard Package, 25 Lbs.

25 in a Carton; 100 in a Standard Package.

Antique copper finish on above at an additional charge.

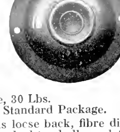
Stamped bronze; plain pattern; nickel silver contacts; black composition rubber buttons.

Diameter, 1½ Inches

Mfrs. No.	Finish	Price Per Doz.
514	Polished Bronze	**$3.60**
514BP	Polished Brass	**3.60**
514BB	Brushed Brass	**3.60**
514AC	Antique Copper	**3.60**

Weight Standard Package, 14 Lbs.
50 in a Carton; 200 in a Standard Package.

Stamped bronze; thick fibre, moistureproof backs; nickel silver contacts; standard centers.



Diameter, 2¼ Inches

Mfrs. No.	Finish	Price Per Doz.
515	Polished Bronze	**$4.80**
515AC	Antique Copper	**4.80**
515BB	Brushed Brass	**4.80**

Weight Standard Package, 30 Lbs.
50 in a Carton; 100 in a Standard Package.

Note.—In pushes listed as locse back, fibre disc that holds springs is not attached to shell or plate. Screwcap pushcs have disc attached and can be connected by unscrewing the cap without disturbing plate.

WOOD PUSH BUTTONS

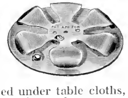
Diameter, 2⅛ inches.
Furnished in Walnut, Oak and Mahogany Polished, Porcelain Center.
Price Each **$0.10**

ANSONIA PUSHES
TABLE CLAMP

For use with dining or card tables, desks or other movable furniture; will not mar. May be used in connection with floor push or wall plug. Fitted with nickel silver rubbing contact springs. Made in all finishes. Nickel plated furnished unless otherwise specificd.

Mfrs. No.	Finish	Standard Package	Price Each
571	Nickel Plated	100	**$0.90**

DAISY FLOOR TREAD



For office, home or any place where it is desirable to operatc a signal on the floor. Slight pressure of foot anywhere on the tread will close contact.

Brass, highly polished; bottom covered with a thick layer of felt; can be concealed under table cloths, rugs or carpcts; is but ⅜ inch thick and very easy to wire.

Mfrs. No.	Diam. In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
800	3¾	100	38	**$2.50**

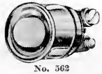
DESK PUSHES

No. D33

Made in two sizcs, ⅝ and $\frac{11}{16}$ inch in diameter; white or black centers; nickel silver springs, fitted to a moulded composition back. Black centers.

Mfrs. No.	Diameter Inches	Std. Pkg.	Price Each
D33	⅝ or $\frac{11}{16}$	100	**$0.40**

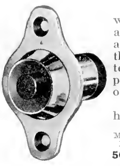
Fitted with nickel silver rubbing contact springs; enclosed in one piece drawn brass shell. Concave white or black push centers.



No. 562

Mfrs. No.	Diameter Inches	Std. Pkg.	Price Each
562	¾	100	**$0.40**

CAR PUSHES



Designed for street cars where passenger signal bells are used. The working parts are completely inclosed making the push dust proof and protecting them from injury. Face plate is 1½ x ⅞ inches. Body of push ½ inch diameter.

Push centers are of black hard rubber.

Mfrs. No.	Std. Pkg.	Price Each
565	500	**$0.60**

PLAIN PEAR PUSHES

Furnished in Maple, Oak and Cherry.

Price Each **$0.30**

BRONX PUSHES

Schedule E

Standard finish satin brass, other finishes speeial. Blaek eomposition centers. Meehanism is entirely insulated and is suffieiently reeessed to allow use of No. 14 wire and still leave ample room between the serews and wall, there being no ehanee of grounding. Wire is fastened direetly to the same screw that holds one side of eontact spring. The fibre is recessed so wire eannot slip out of plaee. Packed in individual box.

NO. 600 BRONX PUSH

Is 2¼ inches in diameter with black eomposition center. Construetion of this push is entirely the same as deseribed above.

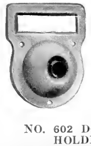
Mfrs. No.	Diameter In.	Standard Package	Price Each
600	2¼	100	$0.18

NO. 603 BRONX PUSH

Is entirely the same eonstruetion as Bronx pushes deseribed above, exeept that it is a miniature size push, only 1¾ in. in diameter.

Mfrs. No.	Diameter In.	Standard Package	Price Each
603	1¾	100	$0.18

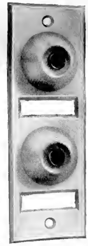
NO. 601 SINGLE CARD HOLDER TYPE



Practieally the same as deseribed above. Card raek is so arranged that a slot for inserting the eard is at each end of the raek, and in this way there is no ugly slot visible when card is in plaee. It permits push to be mounted any way desired without the eard falling out.

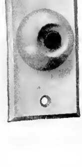
Mfrs. No.	Length In.	Width In., Over All	Std. Pkg.	Price Each
601	2⅜	2	50	$0.35

NO. 602 DOUBLE CARD HOLDER TYPE



The eard holder push is praetieally the same as the Bronx deseribed above. The same good eonstruetion is used and several features have been added that are not eommon to the usual eard holder type of push. Card racks are arranged so that a slot for inserting the card is at eaeh end of the raek, and in this way there is no ugly slot visible when eard is in place. It also allows the push to be mounted any way desired without eard falling out.

Mfrs. No.	Length In.	Width In., Over All	Std. Pkg.	Price Each
602	4½	2	20	$1.00

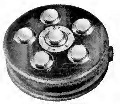


NO 604 PLATE TYPE

The plate type is praetieally the same eonstruetion as deseribed above, but is just the plain type of push. The dimensions are small enough to allow its use in many places where the eommon plate type of push is too large to be adaptable. It is 3 9/16 inches long and 1 11/16 inehes wide. Eaeh push paeked in a box.

Mfrs. No.	Length In.	Width In., Over All	Std. Pkg.	Price Each
604	3 9/16	1 11/16	50	$0.30

ALTMAN DESK AND TABLE PUSHES

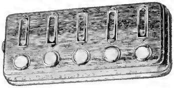


WEIGHTED ROUND STYLE

Standard finishes, golden oak and mahogany. For speeial linishes add **$1.00** for eaeh base ordered. Only niekel plated rims furnished. Add **$1.00** for eaeh additional button over nine.

Cat. No.	No. of Buttons	Price Each	Cat. No.	No. of Buttons	Price Each
616	1	$1.50	621	6	$3.00
617	2	1.70	622	7	3.35
618	3	2.00	623	8	3.70
619	4	2.35	624	9	4.00
620	5	2.70	------	--	-------

RECTANGULAR STYLE—With Name Plates



Standard finishes, golden oak and mahogany. For special linishes add **$1.00** for eaeh base ordered. Only niekel plated rims and eard holders are furnished. Add **$1.00** for each additional button over nine.

Cat. No	No. of Buttons	Price Each	Cat. No.	No. of Buttons	Price Each
625	1	$2.00	630	6	$4.80
626	2	2.50	631	7	5.40
627	3	3.00	632	8	6.00
628	4	3.60	633	9	6.60
629	5	4.20	-----	--	--------

RECTANGULAR STYLE—Without Name Plates

Standard finishes, golden oak and mahogany. For speeial finishes add **$1.00** for eaeh base ordered. Only niekel plated rims are furnished. Add **$1.00** for eaeh additional button over nine.

Cat. No	No. of Buttons	Price Each	Cat. No	No. of Buttons	Price Each
634	1	$1.80	639	6	$3.50
635	2	2.00	640	7	3.90
636	3	2.30	641	8	4.20
637	4	2.80	642	9	4.50
638	5	3.10	-----	--	--------

EDWARDS SURFACE RETURN-CALL PUSH AND BELL

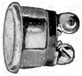
For use with No. 10 return-eall annuneiator. This eonsists of a return-eall push arrangement and a bell mounted in a neat eompaet iron easing.

Standard finish rubberoid blaek, no extra eharge for oxidized eopper.

Mfrs. No.	Description	Price Each
136	Surfaee Return-Call Push and Buzzer	$4.50

EDWARDS PUSH BUTTONS

Schedule E



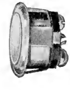
DIXIE JR.

Pearl center. Spring clips on side. Nickel finish.

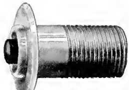
Mfrs. No	Fits Hole, In.	Std. Pkg.	Price Each
620	⅝	50	**$0.39**

MIDGET JR.

Scraping contacts, non-turnable center, flush binding posts, pearl centers.



Mfrs. No	Fits Hole, In.	Std Pkg.	Price Each
1062	⅝	50	**$0.34**



CONDUIT PUSH

Made to fit ½ inch conduit. Will allow installation to be vaporproof; especially adapted for bathrooms, etc.

Mfrs No	For Conduit	Std Pkg.	Price Each
262	½	1	**$3.70**

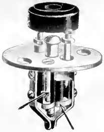
HIGH VOLTAGE

Phosphor bronze contacts and springs; long, quick break; condensite center; shell turned from brass rod.

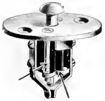
Mfrs. No.	Circuit	Volts	Fits Hole, In.	Std. Pkg.	Price Each
85	High Voltage	110	¾	10	**$2.40**
85C	Closed	110	1⅛	1	**7.85**
85A	Open	220	1⅛	1	**6.20**

NO. 235 FLOOR PUSH

With removable plug and extension attachment for connecting flexible cord with lamp, etc.



Mfrs. No	Std Pkg	Price Each
235	25	**$0.90**



NO. 237 FLOOR PUSH

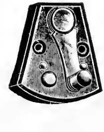
No attachment for cord.

Mfrs No	Std Pkg	Price Each
237	25	**$0.78**

EDWARDS BATTERY SWITCHES

KEYSTONE

Hard rubber base; hollow back; nickel plated parts. Engraving on knob, **$0.25** per letter or figure.

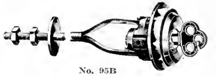


Mfrs. No.	Description	Std. Pkg.	Price Each
172	1 Point	25	**$0.88**
172	2 Point	25	**.92**
172	3 Point	25	**1.24**

EDWARDS BURGLAR ALARM SPRINGS

LOCK SWITCHES—Schedule T

To be placed on the outside of door so persons having keys may enter without giving alarm. Polished brass or nickel.



No. 95B

Mfrs. No.		Std. Pkg.	Price Each
95	As described	1	**$6.50**
95A	Two locks. On entering alarm is turned off and after entering turned on inside	1	**13.00**
95B	Same as No. 95, with Rod to go through door, fastened by nuts inside	10	**7.95**

WINDOW SPRINGS—Schedule E

Open circuit window springs; nosing in normal position; contact broken; closed circuit window springs; nosing in normal position; contact is established. Size of plate, 2⅛x½ inches.

Mfrs. No.	Description	Std. Pkg.	Price Each
28	For Open Circuit	50	**$0.54**
28C	For Closed Circuit	50	**.80**

Same as above with 3⅜x⅝ in. plate.

Mfrs No.	Description	Std. Pkg.	Price Each
30	For Open Circuit	50	**$0.85**
30C	For Closed Circuit	50	**1.03**

For French or pivot windows and for swinging transoms; size of plate, 2¼x1 inch.

Mfrs. No.	Description	Std. Pkg.	Price Each
32	For Open Circuit	25	**$1.55**

DOOR SPRINGS—Schedule E

Cast brass construction; brush brass finish. May also be used as announcers on store doors. Size of plate, 2x⅝ inches.

Mfrs. No.	Description	Std. Pkg.	Price Each
34	For Open Circuit	50	**$0.38**

With make and break spring; establishes contact as door opens or closes. Size of plate, 2x⅝ inches.

Mfrs. No.	Description	Std. Pkg.	Price Each
38	For Open Circuit	50	**$0.46**
39	For Closed Circuit	50	**.46**

No. 39 has same size plate as No. 38; opening door breaks contact.

DOOR TRIPS—Schedule E

Automatically rings bell as door is opening, but is silent when open and in closing door. Screws to door frame. Size of plate, 2x⅝ inches.

Mfrs No.	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
236	25	8½	**$1.03**

Note.—Assortment of 100 springs, all styles and sizes to make one Standard Package.

EDWARDS RECTI BELLS

HEAVY DUTY—WEATHERPROOF

A dependable bell which may be relied upon to give satisfactory service under most extreme operating conditions. Iron case, heavily japanned and provided with felt gasket, oil treated. Gong of bell metal finished black to match case.

No. 100 is the standard bell non-conduit.

No. 1001 same as above, conduit type. A detachable fitting enclosing binding posts to which bell is secured with machine screws furnished. Drilled for ½ inch conduit or ¾ inch if specified.

No. 100U approved sprinkler type for battery 110 or 220 volt, direct current. Has wire leads instead of binding posts.

No. 219 underdome type for battery, 110 or 220 volt, direct current, is the same as No. 100, only the gong is mounted over the case and hammer strikes inside.

No. 219U same as above with wire leads and approved for sprinkler work.

No. 100A automobile bell furnished with gong reversed so as not to hold mud, dirt, etc.

No. 22-A Recti Buzzers, same movement as Recti bell, 3 inch movement. No. 220 B with 6 inch movement.

FOR BATTERY

Size In.	*Std. Pkg.	Volt-age	Ohms Resist-ance	Current Con-sumption	Price Each 100-100U 100A †219-219U	1001 Conduit Type
3	6	4	2	.35	$ 8.85	.....
4	6	4	2	.35	10.85	$20.85
5	6	6	4	.30	15.80	25.80
6	6	6	4	.30	17.80	27.80
8	4	6	4	.30	22.00	32.00
10	2	9	6	.20	37.00	47.00
12	2	9	6	.20	49.90	59.90
14	2	12	10	.12	61.60	.....
16	1	12	10	.12	129.30	.....
18	1	12	10	.12	146.95	.....
220-A	6	4	2	.35	7.90	.....
220-B	6	6	4	.30	11.90	.....

FOR DIRECT CURRENT LIGHTING CIRCUIT

Size In.	*Std. Pkg.	110-125 V. 500 Ohms 100-100U 100A †219-219U	1001 Conduit Type	Price Each 220-250 V. 2000 Ohms 100-100U 100A †219-219U	1001 Conduit Type
3	6	$17.90	.....	$25.80	.....
4	6	19.10	$29.10	27.30	$37.30
5	6	27.90	37.90	40.00	50.00
6	6	30.50	40.50	43.25	53.25
8	4	37.00	47.00	51.90	61.90
10	2	54.90	64.90	72.90	82.90
12	2	67.85	77.85	85.80	95.80
14	2	82.50	.....	103.50	.....
16	1	159.20	.....	189.10	.....
18	1	176.90	.....	206.80	.....
220-A	6	10.45	.....	16.75	.....
220-B	6	17.95	.....	24.10	.....

FOR ALTERNATING CURRENT LIGHTING CIRCUIT

Size In.	*Std. Pkg.	Price Each 110-125 V. 100-100U AC †219-219U AC	1001 AC Conduit	220-250 V. 100-100U AC †219-219U AC	1001 AC Conduit
4	6	$17.45	$27.45	$25.65	$35.65
5	6	28.95	38.95	41.05	51.05
6	6	31.80	41.80	44.55	54.55
8	4	37.35	47.35	52.30	62.30
10	4	60.00	70.00	77.95	87.95
12	2	80.25	90.25	98.25	108.25

*Standard package may be made up of all types Recti in the same sizes or an assortment of 10 Recti, all types—all sizes.

†No. 219 not made smaller than 6 inch size.

EDWARDS RECTI BELLS

HEAVY DUTY—WEATHERPROOF

HIGH VOLTAGE TYPE NO. 217

High voltage bell for direct current up to 600 volts. Binding posts and contact mechanism on slate. Long, quick break.

This bell must be installed with the gong up as shown in the illustration. The case is of heavy iron, heavily japanned and provided with felt gasket, oil treated. There are no openings other than the one for the hammer rod. Gong is of bell metal finished black to match case.

Direct Current

Size In.	Std. Pkg.	Price Each Up to 299 Volts	300 to 499 Volts	500 to 600 Volts
6	6	$49.80	$62.50	$68.30
8	6	57.90	69.15	73.25
10	2	80.15	84.75	91.35
12	2	92.20	102.05	107.00
14	2	115.20	125.90	130.85
16	1	177.75	188.60	193.40
18	1	212.30	222.95	227.50

PROTECTIVE GRIDS

Add to price of any bell.

Size In.	Part Grid	Full Grid	Size In.	Part Grid	Full Grid
4	$5.50	$6.00	12	$10.50	$12.00
6	6.50	7.00	14	24.70	34.50
8	7.75	8.50	16	35.00	45.00
10	9.00	10.00	18	45.00	56.00

EDWARDS SINGLE STROKE BELLS

DIRECT ACTING—Schedule T

No. 21 is for battery or direct lighting current. No. 22 is for alternating current, 18 to 220 volts. Series or multiple operation as possible in both types, but order should specify which method of installation is to be used. Operating voltage should also be specified. No. 22 cannot be operated on less than 18 volts.

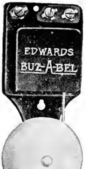
Conduit type bells are furnished with separable fitting that may be installed with the conduit and the bell attached thereon when the wires have been pulled through. Specify if for ½ or ¾ inch conduit.

Finish is black. For fire alarm use red, black gong.

Size In.	Up to 30 Volts	A. C. or D. C. 110 Volts	220 Volts	Add for Con-duit Fitting
*4	$18.30	$26.55	$34.75	$10.00
*5	24.75	36.85	48.95	10.00
6	26.75	39.50	52.20	10.00
8	33.25	48.15	63.10	10.00
10	54.90	72.50	90.80	10.00
12	70.85	88.45	106.75	10.00

*Note—4 and 5 inch bells are made for direct current only and are an adaption of the Recti bell.

EDWARDS BELLS AND BUZZERS
Schedule E



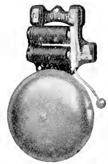
NO. 730 BUZ-A-BEL

A combination bell and buzzer on one frame, under one cover. Hammer rod, ball and armature are all one piece. The hammer ball is under the gong to prevent disarrangement. Armature is pivoted at the nearest possible point to the cover, where there is practically no side motion.

One binding post is for common battery supply, the other two being one for buzzer and one for bell.

Mfrs. No.	Type	Std. Pkg	Price Each
730	Buz-A-Bell	100	**$1.12**

NO. 17 ECONOMY SKELETON BELLS
3 Ohms, 6 to 8 Volts Standard



Skeleton bells are used where a heavier duty bell than the small iron box bell type is needed, but where it is unnecessary to have a covered or weatherproof type.

Contact points are pure, hard drawn silver. Adjustment is made by knurled screw. Binding posts are nonturnable, being riveted at each end.

Protective hood with wood back and wire mesh front can be furnished.

Mfrs. No.	Size Gong Inches	*Std Pkg.	Price Each	Mfrs. No.	Size Gong Inches	*Std. Pkg.	Price Each
17	3	8	**$5.55**	**17**	8	6	**$14.37**
17	4	8	**6.58**	**17**	10	4	**21.34**
17	5	8	**7.80**	**17**	12	4	**27.50**
17	6	12	**8.82**	....	....	..	....

*Assortment of 25 any size to make one standard package.

With cast cow gongs; 3 inch, **$3.50**; 6 inch, **$6.00**; 8 inch, **$15.00**.

NO. 156 MONITOR BELL

An entirely self-contained bell of neat appearance. The hammer-rod moves on a straight line and strikes the inside of the gong. This allows the bell to be made weather, bug and dust proof. Springs are of phosphor bronze, the contacts pure hard drawn silver. Nickel plated gong, base finished black.

Mfrs. No	Size Gong Inches	Ohms	Volts	Std. Pkg	Price Each
156	3	3	6–8	20	**$1.42**

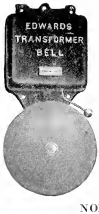
NO. 750 WATCHCASE BUZZER

Small round buzzer, entirely self-contained. The Cover fits tightly, making it weather, bug and dust proof. Springs are phosphor bronze; contacts, hard drawn silver. Finish, all nickel.

Mfrs. No.	Diam. Inches	Ohms	Volts	Std. Pkg.	Price Price
750	⅝x1¾	3	6–8	20	**$0.99**

EDWARDS BELLS AND BUZZERS
Schedule E

NO. 510 TRANSFORMER BELLS



These bells are designed to give the utmost efficiency on alternating current circuits.

Furnished in 3 inch to 12 inch sizes, including buzzer; conduit or non-conduit type; weatherproof or non-weatherproof; plain or with part or full grid.

Two wire entrances are provided; one at top for surface wiring and one at back for concealed wiring. Conduit fittings drilled top and bottom for ½ inch conduit unless ¾ inch is specified. Protective hood with wood back and wire mesh front can be furnished.

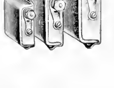
NON-CONDUIT TYPE
For Use on Transformer 6 to 24 Volts

Size In.	*Std. Pkg.	Non-Weather-proof	Weather-proof	†Protective Grids Part Grid	†Protective Grids Full Grid
3	6	**$7.55**	**$10.30**	**$6.75**	....
4	6	**8.05**	**10.85**	**6.75**	**$7.25**
5	6	**17.20**	**19.95**	**7.00**	**7.50**
6	6	**19.10**	**21.85**	**7.50**	**8.00**
8	6	**23.70**	**26.50**	**8.00**	**8.75**
10	3	**42.35**	**45.10**	**9.00**	**10.00**
12	3	**48.55**	**51.30**	**10.50**	**12.00**
Buzz.	6	**7.15**	**9.95**	....	....
For Use Direct on 110 Volts A. C.					
3	6	**15.80**	**18.55**	**6.75**	....
4	6	**16.30**	**18.80**	**6.75**	**7.25**
5	6	**29.35**	**32.10**	**7.00**	**7.50**
6	6	**31.80**	**34.60**	**7.50**	**8.00**
8	6	**38.65**	**41.45**	**8.00**	**8.75**
10	3	**60.30**	**63.10**	**9.00**	**10.00**
12	3	**66.50**	**69.25**	**10.50**	**12.00**
Buzz.	6	**15.40**	**18.20**	....	....

CONDUIT TYPE
For Use on Transformer 6 to 24 Volts

Size In.	*Std. Pkg.	Non-Weather-proof	Weather-proof	†Prot. Grid Part Grid	†Prot. Grid Full Grid
3	6	**$16.00**	**$18.80**	**$6.75**	....
4	6	**16.55**	**19.30**	**6.75**	**$7.25**
5	6	**27.30**	**30.10**	**7.00**	**7.50**
6	6	**29.17**	**31.95**	**7.50**	**8.00**
8	6	**36.05**	**38.80**	**8.00**	**8.75**
10	3	**54.70**	**57.45**	**9.00**	**10.00**
12	3	**63.90**	**66.65**	**10.50**	**12.00**
Buzz	6	**15.65**	**18.40**	....	....
For Use Direct on 110 Volts A. C.					
3	6	**24.25**	**27.00**	**6.75**	....
4	6	**24.75**	**27.50**	**6.75**	**7.25**
5	6	**39.40**	**42.20**	**7.00**	**7.50**
6	6	**41.90**	**44.65**	**7.50**	**8.00**
8	6	**51.05**	**53.80**	**8.00**	**8.75**
10	3	**72.65**	**75.40**	**9.00**	**10.00**
12	3	**81.85**	**84.60**	**10.50**	**12.00**
Buzz	6	**23.85**	**26.60**	....	....

*Standard package may be made up of all types of the same size or an assortment of 10 all types all sizes. †Add to list price of bell.



NO. 15 LUNGEN BUZZERS

Size No.	Size In.	Std. Pkg.	Price Each
0	1⅝x1⅛	25	**$1.85**
1	2⅛x1 5/16	25	**1.45**
2	2 9/16x1¾	25	**1.70**
3	3 x2	25	**1.95**
4	3½x2¼	25	**2.20**

PR IRON BOX BELL AND BUZZERS

Schedule "Q"

VIBRATING—FOR BATTERY CIRCUITS

PR "ECLIPSE" BELLS—CLASS "C"

PR Eclipse Iron Box Bells and Buzzers have non-adjustable side contacts. Can also be used on 6 volt A. C. Bell Ringing Transformers. Standard resistance 2 ohms. Finish: Black with nickel gong and binding posts.

Mfrs. No.	Size Gong	Std. Pkg.	Price Each
201	2½	100	$0.92
202	3	100	.99
203	4	50	1.32
205†	Cow	50	1.59
206†	Sleigh	50	1.59
207†	Dome	50	1.59

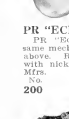
†Std. Pkg. quantity of fancy gongs may be assorted.

PR "ECLIPSE" BUZZERS—Class "C"

PR "Eclipse" Iron Box Buzzers have the same mechanisms as "Eclipse" Bells described above. Resistance 2 ohms. Finish: Black with nickel binding posts.

Mfrs. No.	Finish	Std. Pkg.	Price Each
200	Black	100	$0.89

PR "XXX" BELLS—CLASS "B"



PR "XXX" Iron Box Bells and Buzzers are similar to the "Eclipse" type except have adjustable double-lock side contacts Can also be used on 6 volt A. C. Bell Ringing Transformers. Standard resistance 2 ohms. Finish: Black with nickel gong and binding posts.

Mfrs. No.	Size Gong	Std. Pkg.	Price Each
211	2½	100	$0.99
212	3	100	1.07
213	4	50	1.39
215†	Cow	50	1.66
218†	Sleigh	50	1.66
219†	Dome	50	1.66

†Std. Pkg. quantity of fancy gongs may be assorted.

PR "XXX" BUZZERS—CLASS "B"

PR "XXX" Iron Box Buzzers have same mechanisms as PR "XXX" Bells listed above. Resistance 2 ohms. Finish: Black with nickel binding posts.

Mfrs. No.	Finish	Std. Pkg.	Price Each
210	Black	100	$0.97

PR "MARLO" BELLS—CLASS "A"

PR "MARLO" Iron Box Bells have pivoted armatures, double-lock adjustable side-contacts, back-tension adjustments, inside and outside binding posts, and full insulated mechanisms. Can also be used on 6 volt A. C. Bell Ringing Transformers. Standard resistance 2½ ohms. Wound to special resistance up to 200 ohms at list additions shown below. Finish: Black with nickel gong and binding posts.

Mfrs. No.	Size Gong	Std. Pkg.	Price Each
221	2½	100	$1.49
222	3	100	1.57
223	4	50	1.90
227†	Cow	50	2.17
228†	Sleigh	50	2.17
229†	Dome	50	2.17

†Std. Pkg. quantity of fancy gongs may be assorted.

PR "MARLO" BUZZERS—CLASS "A"

PR "MARLO" Iron Box Buzzers have same mechanisms as PR "MARLO" Bells listed above. Resistance 2½ ohms. Finish: Black with nickel binding posts.

Mfrs. No.	Finish	Std. Pkg.	Price Each
220	Black	100	$1.48

List-Additions for Special Resistance—Schedule "R"
PR "MARLO" Bells and Buzzers

1-10 Ohms	11-20 Ohms	21-30 Ohms	61-100 Ohms	101-200 Ohms
$1.95	$2.20	$2.45	$2.70	$2.95

Note.—For Pure Platinum contacts on "MARLO" Bells or Buzzers add **$1.00 net** each.

"MARLO" Bells and Buzzers are furnished wound to any special resistance desired at standard list additions. "Eclipse" and "XXX" are **not** wound to special resistance except on quantity contracts.

PR IRON BOX BELL AND BUZZERS

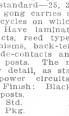
Vibrating—Schedule "E"
For 6 Volt Transformer Circuits

PR "MARLO" TRANSFORMER BELLS AND BUZZERS

PR "Marlo" Transformer Iron Box Bells and Buzzers are heavy in construction throughout and are so superior to the ordinary battery bell and buzzer that they are coming into almost universal use on Bell Ringing Transformer Circuits, where first class, dependable service is required. They are regularly furnished to operate in multiple on 6 volt A. C. Bell Ringing Transformer circuits, 50-60 cycles standard—25, 30 and 40 cycles to order. Each gong carries nameplate showing voltage and cycles on which bell is designed to operate. Have laminated magnet cores, carbon contacts, reed type armatures, insulated mechanisms, back-tension adjustments, adjustable side-contacts and inside and outside binding posts. The mechanism is perfect in every detail, as standards of electric light and power circuits are maintained throughout. Finish: Black with nickel gong and binding posts.

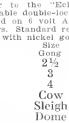
Mfrs. No	Size Gong	Std. Pkg.	Price Each
231	2½	6	$6.15
232	3	6	6.30
233	4	6	6.75
257	Cow	1	8.55
258	Sleigh	1	8.55
259	Dome	1	8.55
260	Buzzer	6	6.00

Also made to operate on 12 volt circuit when specified.



PR "ECLIPSE" COMBINATION IRON BOX BELLS AND BUZZERS

Vibrating—For Battery Circuits—Schedule "Q"



PR "Eclipse" Combination Bells and Buzzers fill the requirements of a single unit giving two (2) signals—one for a front door call, the other for a rear door, dumb waiter or table call. Mechanism is standard PR "Eclipse" with non-adjustable side-contacts. They are recommended for work requiring a low-priced Bell and Buzzer which will give a large volume of sound on light battery circuits. Can also be used on 6 volt A. C. Bell Ringing Transformers. Finish: Black with nickel gong and binding posts. Standard resistance 2 ohms.

Mfrs. No.	Size Gong	Std. Pkg.	Price Each
208	2½	100	$1.12

PR MONITOR BELLS—3 INCH

Schedule "Q"

PR Monitor Bells are designed for special requirements where a self-contained round bell is wanted. Standard resistance is 2 ohms—furnished to any special resistance desired (up to 200 ohms inc.) at standard list additions shown in other column. Base is provided with mounting holes. Finish: Polished nickled gongs with black enamel base.

Mfrs. No.	Std. Pkg.	Price Each
238	20	$1.42

PR WATCHCASE BUZZERS

Schedule "Q"

PR Watchcase Buzzers are made in two types: With adjustable side contacts and with non-adjustable side contacts. Both types are regularly furnished in black velvet enamel with nickel plated crown cap nuts and also in full polished nickel. Standard resistance 2 ohms. Not furnished special resistance except on quantity orders.

Mfrs. No	Finish	Type	Std. Pkg.	Price Each
240	Black	Adjustable	20	$1.12
261	Nickel	Adjustable	20	1.12
265	Black	Non-Adjustable	20	.99
266	Nickel	Non-Adjustable	20	.99

PR GIANT STEEL-CLAD GONGS
N. E. C. Standard—Schedule "E"
Vibrating

Weatherproof and Non-Weatherproof Patterns
For Battery and D. C. Light and Power Circuits

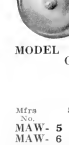
PR "Marlo" Giant Steel-Clad Gongs are furnished for both regular (non-conduit) as well as conduit work. For operation on battery, 110-125 volt and 220-250 volt D. C. light and power circuits. They are provided with substantial extra heavy pressed steel housings for protection of the mechanism, and are sold at but slightly higher price than the open-type Skeleton Faraday Gongs. PR "Marlo" Giant Steel-Clad gongs are very generally used where covered mechanism gongs are required at low cost. Have pivoted armatures, carbon contacts, back-tension adjustments, adjustable side-contacts, insulated mechanisms and inside and outside binding posts. Will be furnished wound to any special resistance at standard list additions. Finish: Black with nickel gongs and binding posts. Specify model No. and voltage when ordering.

MODEL "MA" "MARLO" NON-GUARDED GONGS
Interior—Non-Weatherproof

Mfrs. No.	Size In.	Std. Pkg.	Each	Battery D. C. Price Each	110 to 125 V. D. C. Price Each	220 V.-250 V. D. C. Price Each
MA- 5	5	6	**$12.55**	**$24.70**	**$36.80**	
MA- 6	6	6	**14.15**	**26.85**	**39.55**	
MA- 8	8	4	**19.00**	**33.95**	**48.90**	
MA-10	10	2	**30.90**	**48.85**	**66.80**	
MA-12	12	2	**40.45**	**58.40**	**76.35**	

For prices on conduit pattern, see note bottom of page.

MODEL "MAW" "MARLO" NON-GUARDED GONGS
Weatherproof



Mfrs No.	Size In.	Std. Pkg.	Each	Battery D. C. Price Each	110 to 125 V. D. C. Price Each	220 V.-250 V. D. C. Price Each
MAW- 5	5	6	**$15.35**	**$27.45**	**$39.55**	
MAW- 6	6	6	**16.90**	**29.60**	**42.35**	
MAW- 8	8	4	**21.75**	**36.75**	**51.70**	
MAW-10	10	2	**33.65**	**51.60**	**69.55**	
MAW-12	12	2	**43.25**	**61.20**	**79.15**	

For prices on conduit pattern, see note bottom of page.

MODEL "MBW" "MARLO" HALF GRID GUARDED GONGS
Weatherproof

Mfrs No.	Size In.	Std. Pkg.	Each	Battery D. C. Price Each	110 to 125 V. D. C. Price Each	220 V.-250 V. D. C. Price Each
MBW- 5	5	6	**$22.50**	**$34.65**	**$46.75**	
MBW- 6	6	6	**24.10**	**36.80**	**49.50**	
MBW- 8	8	4	**31.50**	**46.45**	**61.40**	
MBW-10	10	2	**46.40**	**64.35**	**82.30**	
MBW-12	12	2	**60.45**	**78.40**	**96.35**	

For prices on conduit pattern, see note bottom of page.

MODEL "EA" "ECLIPSE"
Not N. E. C. Standard
For Battery Circuits Only

PR "ECLIPSE" Giant Steel Clad Gongs while not to be compared in quality with the "Marlo" Giant Steel Clad Gongs shown above, yet are very generally used where a durable covered mechanism is required at lowest initial cost. Finish: Black with nickel gongs and binding posts. Resistance, three ohms.

Mfrs. No.	Size In.	Std. Pkg.	Each	Battery Circuit Each
EA- 5	5	6		**$9.80**
EA- 6	6	6		**11.30**
EA- 8	8	4		**16.25**
EA-10	10	2		**26.50**
EA-12	12	2		**30.80**

For conduit pattern add letter "P" to model Nos. and following additions to lists shown above.

Size Gongs, Inches	5 and 6	8 and 10	12
Each	**$10.10**	**$12.35**	**15.35**

PR GIANT STEEL-CLAD GONGS
N. E. C. Standard—Schedule "E"
Vibrating

Weatherproof and Non-Weatherproof Patterns
For Transformer and A. C. Light and Power Circuits

Transformer PR "Marlo" Giant Steel-Clad Gongs are furnished for both regular (non-conduit) as well as conduit work. They have extra heavy pressed steel housings for protection of mechanisms and the advantage of laminated magnet cores, pivoted armatures with substantial back-tension adjustments and carbon contacts. They are designed for operation on 12-18 volts A. C. Bell Ringing Transformer (or battery) and 100-110 volt and 220-250 volt A. C. light and power circuits, 50-60 cycles standard—25, 30 and 40 cycles to order.

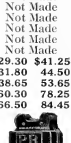
Transformer PR "Marlo" Giant Steel-Clad Gongs are far superior for (in this class of service to the ordinary type of bell. Standards of electric light and power circuit apparatus are maintained in the construction of these gongs, and their mechanisms are perfect in every detail. Finish: Black with nickel gongs and binding posts. Specify model No., voltage and cycles when ordering.

MODEL "MTA" "MARLO" NON-GUARDED GONGS
Interior—Non-Weatherproof

Mfrs. No.	Size In.	Std. Pkg.	Each	12-18 V. Trans. Circuit Each	100-110 V. A. C. Each	220-250 V. A. C. Each
***260**	Buzzer	6	**$6.00**		Not Made	
***231**	2½	6	**6.15**		Not Made	
***232**	3	6	**6.30**		Not Made	
***233**	4	6	**6.75**		Not Made	
***257**	Cow	1	**8.55**		Not Made	
***258**	Sleigh	1	**8.55**		Not Made	
***259**	Dome	1	**8.55**		Not Made	
MTA- 5	5	6	**17.20**	**$29.30**	**$41.25**	
MTA- 6	6	6	**19.05**	**31.75**	**44.50**	
MTA- 8	8	4	**23.70**	**38.65**	**53.65**	
MTA-10	10	2	**42.35**	**60.30**	**78.25**	
MTA-12	12	2	**48.55**	**66.50**	**84.45**	

*Standard package.

MODEL "MTAW" "MARLO" NON-GUARDED GONGS
Weatherproof



Mfrs. No.	Size In. †	Std. Pkg.	Each	12-18 V. Trans. Circuit Each	100-110 V. A. C. Each	220-250 V. A. C. Each
MTAW- 5	5	6	**$19.95**	**$32.10**	**$44.20**	
MTAW- 6	6	6	**21.85**	**34.55**	**47.25**	
MTAW- 8	8	4	**26.50**	**41.45**	**56.40**	
MTAW-10	10	2	**45.10**	**63.05**	**81.00**	
MTAW-12	12	2	**51.30**	**69.25**	**87.20**	

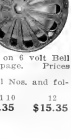
*Standard package.

MODEL "MTBW" "MARLO" HALF GRID GUARDED GONGS
Weatherproof

Mfrs. No.	Size In. †	Std. Pkg.	Each	12-18 V. Trans. Circuit Each	100-110 V. A. C. Each	220-250 V. A. C. Each
MTBW- 5	5	6	**$27.15**	**$39.25**	**$51.40**	
MTBW- 6	6	6	**29.00**	**41.75**	**54.45**	
MTBW- 8	8	4	**36.20**	**51.15**	**66.10**	
MTBW-10	10	2	**57.80**	**75.75**	**93.70**	
MTBW-12	12	2	**68.50**	**86.55**	**104.40**	

†Standard package.

MODEL "MTCW" "MARLO" FULL GRID GUARDED GONGS
Weatherproof



Mfrs. No and Size	Std. Pkg.	Circuit Each	100-110 V. A. C. Each	220-250 V. A. C. Each
MTCW- 5	6	**$40.90**	**$53.00**	**$65.10**
MTCW- 6	6	**42.80**	**55.50**	**68.20**
MTCW- 8	4	**52.70**	**67.65**	**82.60**
MTCW-10	2	**78.05**	**96.00**	**113.95**
MTCW-12	2	**93.20**	**115.15**	**129.10**

*These model Nos. also made for operation on 6 volt Bell Ringing Transformer are listed on another page. Prices same as above.

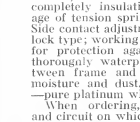
For conduit pattern add letter "P" to model Nos. and following additions to list shown above:

Size Gong, Inches	2½, 3 and 4	5 and 6	8 and 10	12
Each	**$8.45**	**$10.10**	**$12.35**	**$15.35**

ENCLOSED-TYPE FARADAY BUZZERS
N. E. C. Standard—Schedule E
FOR BATTERY AND D.C. LIGHT AND POWER CIRCUITS AND TRANSFORMER AND A.C. LIGHT AND POWER CIRCUITS

Extra heavy frame with close fitting, gasketed covers; all terminals mounted on Bakelite pads completely insulating same from frame. Breakage of tension spring will not disable mechanism. Side contact adjustment is of patented micrometer-lock type; working parts are heavily copper plated for protection against dampness. Magnet coils thoroughly waterproofed; soft rubber gasket between frame and cover guards against outside moisture and dust. Contacts regularly platinoid —pure platinum when specially ordered.

When ordering, specify Model No., voltage and circuit on which to operate.



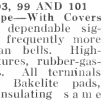
MODELS 93, 99 AND 101
Enclosed Type—With Covers

Absolutely dependable signaling units, frequently more desirable than bells. High-power armatures, rubber-gasketed covers. All terminals mounted on Bakelite pads, completely insulating same from frame.

Nos. 93, 99 and 101						
		Battery		12-18 V.AC Trans.		100
Mfrs. No.	Std. Pkg.	Price Each	110-125 V.DC Price Each	Circuit Price Each	110 V.AC Price Each	
93	6	**$7.05**	Not Made	**$12.50**	Not Made	
99	6	**7.95**	Not Made	**13.40**	Not Made	
101	6	**9.35**	**$17.55**	**14.80**	**$23.00**	

MODELS 89 AND 91—WITHOUT COVERS

Have same mechanism as above buzzers, but are not furnished with covers. Intended for interior mounting in annunciators, switchboards, telephone apparatus, etc. Made for battery and 12-18 volt alternating current transformer operation only.

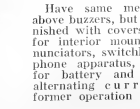


Nos. 89 and 91
12-18 V.AC

Mfrs. No.	Std. Pkg.	Battery Price Each	Trans. Circuit Price Each
89	6	**$6.60**	**$12.00**
91	6	**6.60**	**12.00**

MODEL NO. 94—EXTRA LOUD
Enclosed Type—With Covers

Extra loud; has a heavy steel ball at end of armature rod, which strikes on frame extension with such force and rapidity as to greatly increase sound of signal. Cut shows buzzer with cover removed, but No. 94 has rubber-gasketed cover.



No. 94

Mfrs. No.	Battery Std. Pkg.	Price Each	110-125 V.DC Price Each	12-18 V.AC Trans. Circuit Price Each	100-110 V.A.C. Price Each
94	6	**$11.20**	**$19.40**	**$16.65**	**$24.85**

Six in a standard package.

ADDITIONS FOR SPECIAL CONTACTS

For Platinum Contacts, add, per buzzer, net..**$1.90**
For Triplex Platinoid Contacts, add, per buzzer, net..... **3.75**
For Triplex Pure Platinum Contacts, add, per buzzer, net..... **5.60**

Nos. 89, 91 and 93 not furnished with Triplex Contacts.

Note.—For special resistance D. C. buzzers, see another page.

Catalog illustrating full line of Faraday Signal Gongs and Buzzers will be sent on request.

SKELETON FARADAY BELLS
Schedule E
VIBRATING TYPE—MODEL "O"
For Battery Circuits

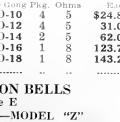
Model "O"

Skeleton Bells meet the requirement of a good signal gong with exposed mechanism; they are not as desirable as Enclosed Type shown on another page, but are still used in large quantities. Faraday Skeleton Bells have "high power" patented pivoted-armatures giving twice the volume of sound that ordinary construction affords; full insulated mechanisms, back-tension adjustments, non-turning contact and binding posts, adjustable locking side-contacts, and cylindrical trunnion bearings. Breakage of tension springs cannot disable gong. Contacts regularly platinoid, but will be furnished Pure Platinum if specially ordered. Wound to any special resistance at standard list additions shown elsewhere in this catalog; also furnished Converted-Single-Stroke when specially ordered at **$2.50** net additional, but for important Single-Stroke work Multiple-Gear Single-Stroke Bells are recommended.

Mfrs. No. and Size Gong	Std. Pkg.	Resistance Ohms	Price Each	Mfrs. No. and Size Gong	Std. Pkg.	Resistance Ohms	Price Each
O- 2½	8	3	**$5.70**	**O-10**	4	5	**$24.85**
O- 3	8	3	**6.05**	**O-12**	4	5	**31.00**
O- 4	8	3	**7.10**	**O-14**	2	5	**62.00**
O- 5	8	4	**9.35**	**O-16**	1	8	**123.70**
O- 6	12	4	**10.55**	**O-18**	1	8	**143.25**
O- 8	6	5	**16.00**	.....	..	..	.....

EKLA SKELETON BELLS
Schedule E
VIBRATING TYPE—MODEL "Z"
For Battery Circuits

Ekla Skeleton Bells are slightly lower in price than Faraday and admittedly not as desirable for important signal work. They have reed-type armatures with substantial back-tension adjustments, side-contacts and non-turning binding posts. Frames finished in dull-black enamel, gongs polished nickel. Pure silver contacts. Wound to any special resistance at standard list additions shown elsewhere in this catalog; will be furnished Converted-Single-Stroke when specially ordered at **$2.50** net additional, but for important Single-Stroke work, Multiple-Gear Single-Stroke Gongs are recommended.



Model "Z"

Mfrs. No. and Size Gong	Std. Pkg.	Resistance Ohms	Price Each	Mfrs. No. and Size Gong	Std. Pkg.	Resistance Ohms	Price Each
Z- 2½	8	3	**$5.25**	**Z- 6**	12	4	**$ 8.85**
Z- 3	8	3	**5.55**	**Z- 8**	6	5	**14.35**
Z- 4	8	3	**6.60**	**Z-10**	4	5	**21.30**
Z- 5	8	4	**7.80**	**Z-12**	4	5	**27.50**

For special resistance gongs, see another page.

ENCLOSED-TYPE FARADAY GONGS

N. E. C. Standard—Schedule E

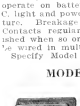
VIBRATING—WEATHERPROOF

For Battery and D. C. Light and Power Circuits

Recommended wherever gongs are to be exposed to dust, dampness or mechanical injury. Used for important signal work by railroads, fire alarm companies, etc. Designed to operate on battery circuits, 110-125 volt and 220-250 volt D. C. light and power circuits. Equipped with high power armature. Breakage of tension spring does not disable gong. Contacts regularly platinoid. Pure platinum can be furnished when so ordered. Bauer-Barff finished gong. Gongs to be wired in multiple.

Specify Model No. and voltage when ordering.

MODEL "A"—Non-Guarded Gongs

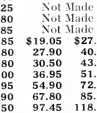


Model "A"

Mfrs. No and Size	Gong	Std. Pkg.	Battery D. C. Each	110-125 Volts D. C. Each	220-250 Volts D. C. Each
A- 1¾	6		$ 6.60	Not Made	
A- 2	6		7.25	Not Made	
A- 2½	6		7.80	Not Made	
A- 3	6		8.85	Not Made	
A- 4	6		10.85	$19.05	$27.30
A- 5	6		15.80	27.90	40.00
A- 6	6		17.80	30.50	43.25
A- 8	4		22.00	36.95	51.90
A-10	2		36.95	54.90	72.85
A-12	2		49.90	67.80	85.80
A-14	2		76.50	97.45	118.40
A-16	1		129.25	159.15	189.10
A-18	1		146.90	176.85	206.75

MODEL "B"

Half-Grid-Guarded Gongs



Model "B"

Mfrs. No and Size	Gong	Std. Pkg.	Battery D. C. Each	110-125 Volts D. C. Each	220-250 Volts D. C. Each
B- 4	6		$17.60	$25.80	$34.05
B- 5	6		22.95	35.10	47.20
B- 6	6		25.00	37.70	50.40
B- 8	4		31.70	46.70	61.60
B-10	2		49.65	67.60	85.55
B-12	2		67.10	85.05	103.00
B-14	2		101.20	122.15	143.10

MODEL "C"

Full-Grid-Guarded Gongs

Model "C"

Mfrs. No and Size	Gong	Std. Pkg.	Battery D. C. Each	110-125 Volts D. C. Each	220-250 Volts D. C. Each
C- 4	6		$28.80	$37.00	$45.20
C- 5	6		36.75	48.85	60.95
C- 6	6		38.75	51.45	64.20
C- 8	4		48.15	63.15	78.10
C-10	2		69.85	87.80	105.75
C-12	2		91.80	109.75	127.70
C-14	2		128.85	149.80	170.75

MODEL "CW"

Full-Screen-Guarded Gongs

Model "CW"

Mfrs. No and Size	Gong	Std. Pkg.	Battery D. C. Each	110-125 Volts D. C. Each	220-250 Volts D. C. Each
CW- 5	6		$36.75	$48.85	$60.95
CW- 6	6		38.75	51.45	64.20
CW- 8	4		48.15	63.15	78.10
CW-10	2		69.85	87.80	105.75
CW-12	2		91.85	109.75	127.70
CW-14	1		128.85	149.80	170.75

For additions for platinum and triplex contacts and for special resistance gongs see another page.

For Conduit Pattern

Add "P" to above Model Nos. and following additions to lists shown above.

Size of Gong, In.					
4 and 5	6 and 8	8 and 10	12	14	16 and 18
$8.45	$10.10	$12.35	$15.35	$18.70	$24.70

ENCLOSED-TYPE FARADAY GONGS

N. E. C. Standard—Schedule E

VIBRATING—WEATHERPROOF

For Transformer & A. C. Light and Power Circuits

Designed for operation on 12-18 volt A. C. Bell Ringing Transformer or Battery, and 100-110 volt and 220-250 volt A. C. light and power circuits, 50-60 cycles standard—25, 30 and 40 cycles to order.

Mechanism is different in design and operation from ordinary signal gongs. Extreme rapidity of vibration gives a sound just as satisfactory for code-signaling as a single-stroke gong. Furnished to operate in multiple only—without external resistance.

Specify Model No., voltage and cycles when ordering.

MODEL "AT"

Non-Guarded Gongs

Model "AT"

Mfrs. No. and Size	Gong	Std. Pkg.	12-18 V. Trans. Circuit Each	100-110 Volts A. C. Each	220-250 Volts A. C. Each
AT- 4	6		$16.30	$24.55	$32.75
AT- 5	6		25.00	37.10	49.20
AT- 6	6		27.30	40.00	52.75
AT- 8	4		33.15	48.10	63.05
AT-10	2		52.65	70.60	88.55
AT-12	2		59.90	77.80	95.75

MODEL "BT"

Half-Grid-Guarded Gongs

Model "BT"

Mfrs No and Size	Gong	Std. Pkg.	12-18 V. Trans Circuit Each	100-110 Volts A. C. Each	220-250 Volts A. C. Each
BT- 4	6		$23.05	$31.25	$39.50
BT- 5	6		32.15	44.30	56.40
BT- 6	6		34.50	47.20	59.90
BT- 8	4		42.85	57.80	72.80
BT-10	2		65.40	83.35	101.30
BT-12	2		77.05	95.00	112.95

MODEL "CT"

Full-Grid-Guarded Gongs

Model "CT"

Mfrs. No. and Size	Gong	Std. Pkg.	12-18 V. Trans. Circuit Each	100-110 Volts A. C. Each	220-250 Volts A. C. Each
CT- 4	6		$34.25	$42.50	$50.70
CT- 5	6		45.95	58.05	70.15
CT- 6	6		48.25	60.95	73.70
CT- 8	4		59.30	74.30	89.25
CT-10	2		85.60	103.50	121.50
CT-12	2		101.75	119.70	137.65

MODEL "CWT"

Full-Screen-Guarded Gongs

Model "CWT"

Mfrs. No. and Size	Gong	Std. Pkg.	12-18 V. Trans. Circuit Each	100-110 Volts A. C. Each	220-250 Volts A. C. Each
CWT- 5	6		$45.95	$58.05	$70.15
CWT- 6	6		48.25	60.95	73.70
CWT- 8	4		59.30	74.30	89.25
CWT-10	2		85.60	103.50	121.50
CWT-12	2		101.75	119.70	137.65

For Inspectors' Pattern

Add "I" to above Model Nos. and following additions to lists shown above.

Size of Gong, In.					
4	5 and 6	8 and 10	12	14	16 and 18
$13.90	$18.50	$28.85	$32.10	$38.75	$70.40

Catalog illustrating full line of Faraday Signal Gongs sent on request.

ELECTRO-MECHANICAL FARADAY GONGS

N. E. C. Standard—Schedule T
VIBRATING OR SINGLE-STROKE

*For Battery Circuits

Model "E" Non-Conduit Pattern
Model "EP" for Conduit Work

Electro-Mechanical gongs are designed to give a very loud, powerful signal, with a minimum of current. The blow itself on the gong is struck by a heavy ball on the end of a lever, released by the electric current, but operated by a powerful clock spring. The powerful steel clock spring operating the main shaft is securely housed on the under side of the mounting plate, entirely separate from the gear and lever compartment.

Faraday Electro-Mechanical gongs give approximately 700 blows with one winding, and at **$5.00** net additional per gong they will be furnished, when specially ordered, with reliable rewind signal contactor to which may be connected a tell-tale bell to give notification whenever a gong needs rewinding. It will also give warning if, from any cause, the mainspring of the mechanism should break.

Regularly furnished with knockouts for ½ or ¾-inch conduit, as specified, in four sides of the box.

Standard Finish:—Dull black enamel with gun-metal gongs. Cases, when specially ordered, will be furnished without additional charge, in English vermilion finish.

The following types of mechanism are made. Type must be specified:

1. Single stroke, for open circuit work. (Gongs ring only when circuit is closed.)
2. Single stroke, for closed circuit work. (Gongs ring only when circuit is opened.)
3. Continuous ringing, for open circuit work. (Gongs ring only when circuit is closed.)
4. Continuous ringing, for closed circuit work. (Gongs ring only when circuit is opened.)
5. To ring continuously until run down, for open circuit work (**$5.00** net additional). (Gongs ring only when circuit is closed.)
6. To ring continuously until run down, for closed circuit work (**$5.00** net additional). (Gongs ring only when circuit is opened.)

Specify Model No. and Type when ordering.

MODEL "EP" With Conduit-Box Backs For Exposed (surface) Conduit			MODEL "E" For Regular Surface Installations Without Conduit		
Mfrs. No.	Size In.	Price Each	Mfrs. No.	Size In.	Price Each
EP- 8	8	**$103.60**	E- 8	8	**$91.25**
EP-10	10	**114.05**	E-10	10	**101.75**
EP-12	12	**124.55**	E-12	12	**112.20**
EP-14	14	**138.00**	E-14	14	**125.65**
EP-16	16	**167.95**	E-16	16	**155.60**
EP-18	18	**182.90**	E-18	18	**170.55**

One in a standard package.

*Gongs regularly wound to 20 ohms resistance; special windings furnished at standard list additions; also furnished for Transformer and Light and Power Circuits on special orders at standard additions.

Bells of continuous ringing until run down type, on either closed or open circuits, carry a price addition of **$5.00** net.

Catalog illustrating full line of Faraday Signal Gongs and Buzzers will be sent on request.

PATTERSON TANK INDICATORS
ELECTRIC

These electric tank indicators, operated either from battery or low-voltage transformer, fill an important want in the industrial field and thousands more would be used each year if their usefulness were better understood. In connection with a reliable signal gong or annunciator (or both) they give an infallible warning signal when contents of a tank have reached a maximum or minimum level or both. They supplement the use of tank float switches—and doubly safeguard the plant against possible failure of tank switches and pumps to function.

High and Low Water for Closed Tank

Has galvanized cast iron base for tank covering and bracket for upper level float. Twelve inches is usual distance between high and low water floats.

Mfrs. No.	Price Each
A-20	**$25.00**

High and Low Water for Open Tank

Same as above type, but with heavy, galvanized iron clamp bracket with thumb screw for fastening to edge of open tank.

Mfrs. No.	Price Each
B-21	**$25.00**

Low Water for Open Tank

Similar to above type, but with single ball float and 24-inch galvanized iron stem.

Mfrs. No.	Price Each
D-23	**$15.00**

High Water for Open Tank

Same as No. D-23 with 20-inch stem.

Mfrs. No.	Price Each
F-25	**$15.00**

High Water for Closed Tank

With galvanized iron base for fastening to tank covering, single ball float and 20-inch pipe stem.

Mfrs. No.	Price Each
E-24	**$15.00**

Low Water for Closed Tank

Same as No. E-24, but with 24-inch pipe stem.

Mfrs. No.	Price Each
C-22	**$15.00**

Note—Extra lengths for any of above indicators, per foot, **$1.00**. If greater distance between base of flange and ball float is required, same will be furnished up to twelve feet at **$1.00** per foot.

SINGLE-STROKE FARADAY SIGNAL GONGS

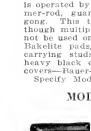
N. E. C. Standard—Schedule T

ENCLOSED TYPE—For Battery and D.C. Circuits

Faraday Battery and D. C. Single-Stroke Gongs have extremely powerful, long-movement mechanisms. No possibility of a double stroke as semi-flexible, recoil-type hammer rod is operated by multiple gear between the armature and hammer-rod, guaranteeing a clear, unmuffled single blow on gong. This type of gong is best connected in series, although multiple connection can be made if necessary. Cannot be used on A. C. circuits. All terminals are mounted on Bakelite pads, obviating the necessity of bushing current-carrying studs where they pass through castings. Have heavy black enameled cast iron bases and rubber-gasketed covers—Bauer-Barff finished gongs, etc.

Specify Model No. and voltage when ordering.

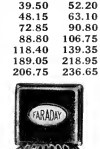
MODEL "AS"—Non-Guarded Gongs



Model "AS"

Mfrs. No. and Size Gong	Std. Gong	Battery Pkg.	110-125 Volts D. C. Each	220-250 Volts D. C. Each
AS- 4	1		$18.35	$26.55	$34.75
AS- 5	1		24.75	36.85	48.95
AS- 6	1		26.80	39.50	52.20
AS- 8	1		33.20	48.15	63.10
AS-10	1		54.90	72.85	90.80
AS-12	1		70.85	88.80	106.75
AS-14	1		97.45	118.40	139.35
AS-16	1		159.15	189.05	218.95
AS-18	1		176.85	206.75	236.65

MODEL "BS"
Half-Grid-Guarded Gongs



Model "BS"

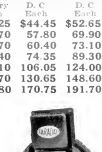
Mfrs. No. and Size Gong	Std. Gong	Battery Pkg.	110-125 Volts D. C. Each	220-250 Volts D. C. Each
BS- 4	1		$25.05	$33.25	$41.45
BS- 5	1		31.95	44.05	56.15
BS- 6	1		33.95	46.65	59.35
BS- 8	1		42.95	57.90	72.85
BS-10	1		67.60	85.55	103.50
BS-12	1		88.05	106.00	123.95
BS-14	1		122.15	143.10	164.05

MODEL "CS"
Full-Grid-Guarded Gongs

Model "CS"

Mfrs. No. and Size Gong	Std. Gong	Battery Pkg.	110-125 Volts D. C. Each	220-250 Volts D. C. Each
CS- 4	1		$36.25	$44.45	$52.65
CS- 5	1		45.70	57.80	69.90
CS- 6	1		47.70	60.40	73.10
CS- 8	1		59.40	74.35	89.30
CS-10	1		88.10	106.05	124.00
CS-12	1		112.70	130.65	148.60
CS-14	1		149.80	170.75	191.70

MODEL "CWS"
Full-Screen-Guarded Gongs



Model "CWS"

Mfrs. No. and Size Gong	Std. Gong	Battery Pkg.	110-125 Volts D. C. Each	220-250 Volts D. C. Each
CWS- 5	1		$45.70	$57.80	$69.90
CWS- 6	1		47.70	60.40	73.10
CWS- 8	1		59.40	74.35	89.30
CWS-10	1		88.10	106.05	124.00
CWS-12	1		112.70	130.65	148.60
CWS-14	1		149.80	170.75	191.70

For Faraday Special Resistance Gongs, see another page.

For Conduit Pattern

Add "P" to above Model Nos. and following additions to lists shown above.

Size of Gong, In.					
4	5 and 6	8 and 10	12	14	16 and 18
$8.45	$10.10	$12.35	$15.35	$18.70	$24.70

Catalog illustrating full line of Faraday Signal Gongs and Buzzers sent on request

SINGLE-STROKE FARADAY SIGNAL GONGS

N. E. C. Standard—Schedule T

ENCLOSED TYPE

For 12-18 V. Transformer and 100-125 V. and 220-250 V. 50-60 Cycle A.C. Circuits (25-30 and 40 Cycle to Order)

Faraday A. C. Single-Stroke Gongs fill a long felt want. Design of mechanism is in accordance with latest engineering standards—with laminated cores to minimize magnetic losses and light moving parts to insure best results. Gongs listed below are wired for operation in multiple on voltages specified, but special resistance gongs will be furnished, when specified, to operate in series on 100-125 volt and 220-250 volt A. C. circuits. Have heavy black-enameled cast-iron bases, with closely fitted rubber-gasketed covers, guarding against dampness and dust. All terminals are mounted on Bakelite pads—obviating necessity of bushing current-carrying studs where they pass through castings.

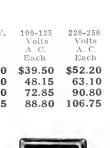
Specify Model No., voltage and cycles when ordering.

MODEL "ATS"—Non-Guarded Gongs

Model "ATS"

Mfrs. No. and Size Gong	Std. Gong	12-18 V. Trans. Circuit Pkg.	100-125 Volts A. C. Each	220-250 Volts A. C. Each
ATS- 6	1		$26.80	$39.50	$52.20
ATS- 8	1		33.20	48.15	63.10
ATS-10	1		54.90	72.85	90.80
ATS-12	1		70.85	88.80	106.75

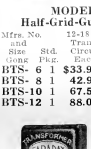
MODEL "BTS"
Half-Grid-Guarded Gongs



Model "BTS"

Mfrs. No. and Size Gong	Std. Gong	12-18 V. Trans. Circuit Pkg.	100-125 Volts A. C. Each	220-250 Volts A. C. Each
BTS- 6	1		$33.95	$46.65	$59.35
BTS- 8	1		42.95	57.90	72.85
BTS-10	1		67.50	85.55	103.50
BTS-12	1		88.05	106.00	123.95

MODEL "CTS"
Full-Grid-Guarded Gongs



Model "CTS"

Mfrs. No. and Size Gong	Std. Gong	12-18 V. Trans. Circuit Pkg.	100-125 Volts A. C. Each	220-250 Volts A. C. Each
CTS- 6	1		$47.70	$60.40	$73.10
CTS- 8	1		59.40	74.35	89.30
CTS-10	1		88.10	106.05	124.00
CTS-12	1		112.70	130.65	148.60

MODEL "CWTS"
Full-Screen-Guarded Gongs

Model "CWTS"

Mfrs. No. and Size Gong	Std. Gong	12-18 V. Trans. Circuit Pkg.	100-125 Volts A. C. Each	220-250 Volts A. C. Each
CWTS- 6	1		$47.70	$60.40	$73.10
CWTS- 8	1		59.40	74.35	89.30
CWTS-10	1		88.10	106.05	124.00
CWTS-12	1		112.70	130.65	148.60

For Inspectors' Pattern

Add "I" to above Model Nos. and following additions to lists shown above.

Size of Gong, In.					
4	5 and 6	8 and 10	12	14	16 and 18
$13.90	$18.50	$28.85	$32.10	$38.75	$70.40

Catalog illustrating full line of Faraday Signal Gongs and Buzzers sent on request.

SCHWARZE ELECTRIC SIGNALS

SINGLE STROKE BELLS

For Direct Current Only

The mechanism of this bell is entirely insulated from the frame. It is made with enclosed terminals only and frame tapped for ½ inch conduit. It can be operated in multiple or in series.

Designed for fire alarm service, factory signaling, superintendent's calls, etc. Is furnished with or without back-boxes.

For back-boxes, add **$2.00** each.

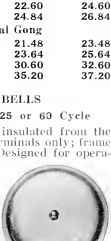
No. 21—Standard Resistance 3 Ohms
With Special Steel Gong

Size Gong	Not Over 12 Volts	14 to 30 Volts	110 Volts	220 Volts
	Price Each			
6	$15.84	$16.34	$18.84	$20.84
8	17.50	18.00	20.50	22.50
10	19.60	20.10	22.60	24.60
12	21.84	22.34	24.84	26.84
	With Cast Bell Metal Gong			
6	18.48	18.98	21.48	23.48
8	20.64	21.14	23.64	25.64
10	27.60	28.10	30.60	32.60
12	32.20	32.70	35.20	37.20

SINGLE STROKE BELLS

For Alternating Current—25 or 60 Cycle

The mechanism is entirely insulated from the frame. Made with enclosed terminals only; frame tapped for ½ inch conduit. Designed for operation in multiple or series. This type of bell is designed to mount with gong up; all others should be installed with gong down.



No. 24

Standard Resistance .25 Ohm
With Special Steel Gong

Size Gong	Not Over 30 Volts	110 Volts	220 Volts
	Price Each		
6	$15.80	$16.30	$16.80
8	16.95	17.45	17.95
10	21.40	21.90	22.40
	Cast Bell Metal Gong		
6	20.35	20.85	21.35
8	22.64	23.14	23.64
10	30.36	30.86	31.36

ENCLOSED TYPE VIBRATING BELLS

For Low Voltage D. C. or A. C.

Designed to meet the demand for a bell of a larger heavier type than the iron box bell. Especially adapted to indoor signaling. It is of the plunger hammer type which produces the maximum volume of sound from the gong; requires no adjustment. Exposed terminals only. The mechanism is grounded. Recommended for multiple operation only.

For operation on two dry cells or 6 volt secondary transformer.

No. 29B—Standard Winding—2 Ohms

Size of Gong	Kind of Gong	Net Wt., Lb.	Price Each
4 Inch Round	Special Steel	1⅜	$3.30
5 Inch Round	Special Steel	1⅝	3.85

HOLTZER-CABOT BELLS

SCHOOLYARD GONGS

Direct Current Only

No. 151035

Made in 10 and 14 inch sizes. Bells are watertight, of few parts and can be opened for inspection. Blow of hammer is delivered directly to bell. Have short, broad armature with wide space between bearings, giving freedom of motion, combined with rigidity of construction. No trunnion screws to loosen. Bell complete with cage and housing; mounted on heavy wood mat. Contacts are of pure silver.

Mfrs. No	Size Gong Inches	Price Each 12 to 16 V.	Price Each 20 to 24 V.
151035	10	$127.16	$129.06
151035	14	173.80	175.70

TYPE A—SCHOOLYARD

Alternating Current

No. 151036

Especially designed to meet requirements for schoolyard use. Mounted on thick wood mat; covered by metal housing and screen. Gong is of cast bell metal instead of pressed steel. Armature, hammer and all operating parts are enclosed in moisture-proof case. Finish of mat, screen, and housing, dark green; gong, polished bell metal.

Mfrs. No	Cycles	Size Gong inches	Wt.Lbs. Each	Price Each 12 Volts	Price Each 110 Volts
151036	60	10	20½	$78.20	$86.20
151036	60	12	22	83.94	86.94
151036H	25	10	20½	79.20	82.20
151036H	25	12	22	81.20	84.20

TYPE S BELL

N. E. C. Standard

Direct Current

No. 151020

For operation on low voltage direct current. Bells are of the enclosed type and dustproof, exceedingly efficient and reliable, of the finest construction; very neat in appearance. Equipped with triple silver contacts and enamel wire wound magnets. May be mounted on wood mat or arranged for surface or concealed conduit work. Standard finish of case is black enamel baked on; gong, dull black.

Mfrs. No	Size Gong Inches	Price Each 12 to 16 V.	Price Each 20 to 24 V.
151020	3	$11.56	$11.94
151020	4	11.94	12.32
151020	6	16.44	17.00
151020	8	31.04	33.90
151020	10	33.02	35.88
151020N	1⅜ Sleigh	14.22	14.60
151020Q	Ash Mats for 1⅜ Inch Sleigh and 3 and 4 Inch Gongs, add		6.18
151020R	Ash Mats for 6 Inch Gongs, add		7.70
151020S	Ash Mats for 8 and 10 Inch Gongs, add		8.76

HOLTZER-CABOT ELECTRO-MECHANICAL BELLS

No. 151037

Direct Current

This bell is of the turtle pattern, the mechanism being concealed underneath the gong, yet readily accessible by removing outer ring. The bell, which is wound through central post with crank, will strike 500 blows with one winding. Working parts are copper plated to prevent rusting, and Geneva stop motion protects spring against overwinding. Bell may be equipped with telltale contact, which signals when time to rewind. Standard finish of gong, black oxidized; outer ring, fire-alarm red.

Mfrs. No.	Size Gong Inches	Resistance Ohms	Price Each
151037	10	4	**$132.00**
151037H	Ash Mat for 10 Inch Bell		**9.20**

LOUD RING POLARIZED EXTENSION BELLS

Alternating Current

Adapted for use as call systems. Cases are stamped steel, heavily enameled; coils are treated with insulating varnish, bells are waterproof and suitable for installation in exposed places. Equipped with 6 inch gongs and a special polarized ringer movement, operating on any alternating current telephone generator.

No. 201020

Mfrs. No.	Resistance Ohms	Price Each	Mfrs. No.	Resistance Ohms	Price Each
200010	80	**$18.52**	**200025**	1600	**$20.38**
200018	500	**19.14**	**200030**	2000	**21.00**
200020	1000	**19.76**	**200032**	2500	**21.68**

Condensers

200040	For 2 M. F. Condenser, add	**$4.50**
200042	For 4 M. F. Condenser, add	**6.00**
200044	For Biasing Attachment, add	**4.66**

RINGER COILS ONLY

For Loud Ringing Extension Bells

Mfrs. No.	Resistance Ohms	Price Each	Mfrs. No.	Resistance Ohms	Price Each
200045	40	**$1.65**	**200048**	800	**$2.40**
200046	250	**1.90**	**200049**	1000	**2.90**
200047	500	**2.15**	**200050**	1250	**3.40**

REACTO ELECTRIC HORNS

No. 151125

N. E. C. Standard

These horns are intended for fire alarm and factory signaling. The contact points in the direct current horn are Tungsten with condenser bridged across; sparking is practically eliminated. The 230 volt horn is mounted on slate base, 6½ x 9 inches, together with an external resistance unit, protected by cast iron cover. Waterproof construction, all steel parts copper plated; diaphragms, tempered steel.

Mfrs. No.	Description	Price Each
151125	110 Volts, 60 Cycles, A. C.	**$29.35**
151125	220 Volts, 60 Cycles, A. C.	**33.35**
151126	115 Volts, Direct Current	**39.25**
151126	115 to 230 Volts, D. C.	**62.35**

HOLTZER-CABOT BELLS

TYPE AD BELL

For Operation on Alternating Current

The type AD is a heavy duty bell. It may be used on alternating current from 10 to 110 volts—from the lighting circuit or a transformer. Frame and cover are heavy castings; gong is of hot-pressed steel. The frame is finished in dull black enamel and gong is finished dull black, excepting cow gongs which are furnished in polished nickel. Transformers may be supplied with various voltage taps for AD bell circuits so that any slight drop in voltage may be corrected.

Size In.	Mfrs. Nos. 151017 12 Volt 60 Cycle	151017F 12 Volt 25 Cycle	151017G 24 Volt 60 Cycle	151017H 110 Volt 60 Cycle	151017L 110 Volt 25 Cycle
6	**$19.80**	**$20.80**	**$19.80**	**$20.80**	**$21.80**
8	**26.20**	**27.20**	**26.20**	**27.20**	**28.20**
10	**38.00**	**40.00**	**38.00**	**39.40**	**41.40**
12	**43.20**	**45.20**	**43.20**	**44.40**	**46.40**

No. 151017P for 4 inch cow gong, add to price of 6 inch size, **$2.00** No. 151017R for 6 inch cow gong, add to price of 8 inch size, **$7.00.**

TRANSFORMERS

Mfrs No.	Transformer Rating Watts	Max. No. of Bells 6 and 8	Max. No. of Bells 10 and 12	Price Each
151019	50	5	3	**$20.00**
151019	125	10	9	**32.00**
151019	250	20	18	**48.00**
151019	500	50	30	**54.50**

DOUBLE GONG BELLS

N. E. C. Standard

Case is of stamped steel, heavily japanned, is weatherproof and suitable for installation outside and in exposed places. Designed to operate on alternating current, and may be used on power or lighting circuits without external resistance. Have polarized ringer movements which, having no contacts, eliminate all sparking. Armature is riveted to a tempered steel reed and vibrates in synchronism with the frequency. There are no pivots or contact points. Standard finish of gongs, polished nickel.

Mfrs No.	Size Inches	Cycles	Price Each 10 to 12 V.	110 V.	220 V.
151110	6	60	**$19.20**	**$19.80**	**$20.30**
151110N	6	25	**20.50**	**20.50**	**21.70**

Special Features

Mfrs. No.	Description	Price Each
151114	For 8 Inch Steel Gong Add	**$12.00**
151114K	For 6 Inch Cast Gong Add	**5.20**
151114M	For 8 Inch Cast Gong Add	**18.25**
151114N	For 6 Inch Cow Gong Add	**26.60**
151114P	For 4 Inch Steel Gong Add	**3.40**

FEDERAL ELECTRIC SIRENS
INTERIOR TYPE

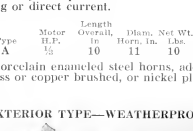
Designed for use in factories, industrial plants, mines, school rooms, public buildings, etc. Can also be used as a call signal. It can be wired in multiple of any number to a circuit, or can be connected to any existing lighting circuits and operated from telephone switchboard or by push buttons located at different points for convenience. It can be used as a start and stop or work regulator signal inside factories, industrial plants, etc., and can be connected to any standard time-recording system to automatically sound its message at regular intervals.

Supplied in any voltage from 6 to 250 and any number of cycles up to 60. Universal motor, alternating or direct current.

Cat. No	Type	Motor H.P.	Length Overall, In.	Diam. Horn, In.	Net Wt. Lbs.	Price Each
602	A	½	10	11	10	**$35.00**

For porcelain enameled steel horns, add **$10.00.** For brass or copper brushed, or nickel plated, add **$15.00.**

EXTERIOR TYPE—WEATHERPROOF



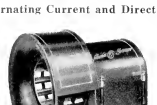
With heavy drawn sheet metal horn and motor housing, the exterior style takes the place of unreliable and expensive bells, whistles, etc., wherever electricity is available. Especially adapted for use in small mining camps, villages, lumber camps, quarries, factories, railway crossings, congested yards, etc.

All parts are weatherproof, operating mechanism encased. Supplied with an adjustable bracket so that it can be attached anywhere and pointed in any direction. Made in any voltage from 6 to 250 and in any number of cycles up to 60. Universal motor, alternating or direct current. Can be wired in multiple of any number to a circuit, operated from any number of convenient locations or from central location such as office, fire house, etc.

Cat. No	Type	Motor H.P.	Length Overall, In.	Diam. In. Horn	Diam. In. Body	Net Wt. Lbs.	Price Each
603	A	½	16½	14	5½	14½	**$35.00**

For porcelain enameled steel horns, add **$10.00.** For brass or copper brushed, or nickel plated, add **$15.00.**

FEDERAL ELECTRIC SIRENS
SINGLE HEAD TYPE B
For Alternating Current and Direct Current



This signal is designed for use as a general alarm in small towns, or as a starting and quitting signal at factories, plantations, ranches, farms, etc. The distance penetration is approximately three-quarters of a mile, depending upon the wind, weather and surroundings. For the very small town, factory or mine, the above type is adequate. But where a sound penetration of three-quarters of a mile is insufficient, we recommend the use of the double head type.

ALTERNATING CURRENT

Single Phase, 60 Cycle, 110 or 220 Volts

Cat. No.	Motor H.P.	Dimensions, In.— Length	Height	Width	*Net Wt. Lbs	Price Each
604	2½	29	21	22	240	**$300.00**

Two or Three Phase 110, 220 or 400 Volts

606	2½	29	21	22	240	**275.00**

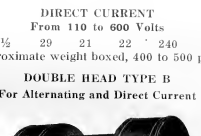
DIRECT CURRENT

From 110 to 600 Volts

605	2½	29	21	22	240	**275.00**

*Approximate weight boxed, 400 to 500 pounds.

DOUBLE HEAD TYPE B
For Alternating and Direct Current



This type has two revolving cylinders in the sound mechanism. The effect is to double the volume of sound, adapted for use where a signal apparatus of greater penetration than the single head type is required. Approximate penetration one and one-half miles.

An ideal signal for towns and villages having volunteer fire departments.

ALTERNATING CURRENT

Single Phase, 60 Cycle, 110 or 220 Volts

Cat. No.	Motor H.P.	Dimensions, In.— Length	Height	Width	*Net Wt. Lbs.	Price Each
607	5	41	21	22	325	**$425.00**

Two or Three Phase 110, 220 or 400 Volts

608	5	41	21	22	325	**360.00**

DIRECT CURRENT

From 110 to 600 Volts

609	5	41	21	22	325	**360.00**

BENJAMIN INDUSTRIAL SIGNALS
Where They Can Be Used

Benjamin Industrial Signals are designed to be used in connection with Interior and Exterior Calling or Warning Systems, or a combination of the two. They can be used on either manually or automatically controlled signal systems, or in combination with gongs or bells.

DIRECT CURRENT SIGNALS

For use on multiple arrangement only, and can be used successfully on circuits carrying a voltage as high as 250 volts, D. C. When six or eight signals are to be used on one system, no lower voltage than 30 volts, D. C. should be used. Sounding mechanism is of the vibrator type with make and break contact points of coin silver having large contact area. Contact springs are of the best grade spring bronze and mounted independent of the armature. Adjusting screw is self-locking and is unaffected by mechanical vibration. Special adjusting means, accessible through the projector, is provided for increasing or decreasing the volume of tone and governing the tone pitch.

Heavy Duty Weatherproof Signals

No. 8326H

Cast iron back cover or body, with two mounting lugs, tapped for ½ inch pipe connection. Pressed steel front cover is rigidly attached to a one-piece drawn-brass bell-type sound projector. Black enamel finished. Ten in a standard package.

Mfrs. No.	Projector	Connection	Voltage	Price Each
8326H	Brass Bell	½ In. Conduit	*	**$12.00**

Heavy Duty Non-Weatherproof Signals

No. 8326A

Pressed steel back cover with side opening having approved insulated wire entrance accommodating open wiring. Pressed steel front cover, with mounting bracket attached, is rigidly fastened to a one-piece drawn-brass bell-type sound projector. Wire connections easily accessible by loosening two screws and removing back. Black enamel finished. Ten in a standard package.

Mfrs. No.	Projector	Connection	Voltage	Price Each
8326A	Brass Bell	Open Wiring	*	**$10.00**

No. 8354A

Same as the above, except that it is equipped with 9 inch conical sound projector.

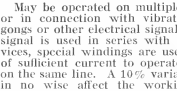
Mfrs. No.	Projector	Connection	Voltage	Price Each
8354A	9 In. Conical	Open Wiring	*	**$9.70**

*Standard voltage on all above signals is 110 volts D. C., but any voltage from 6 to 250 D. C. inclusive may be specified, without change in price. Specify voltage when ordering.

BENJAMIN INDUSTRIAL SIGNALS
ALTERNATING CURRENT SIGNALS

May be operated on multiple or series circuits, or in connection with vibrator or single-stroke gongs or other electrical signal equipment. When signal is used in series with other electrical devices, special windings are used to allow passage of sufficient current to operate the other devices on the same line. A 10% variation in voltage will in no wise affect the working of the signals. Weatherproof casings are recommended when signal is to be used outside. Sounding mechanism is of the vibrator type. Vibrations result from alternating current cycles; no make and break contacts required, no adjustments needed and signal will operate continuously without attention.

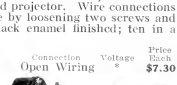
Heavy Duty Non-Weatherproof Signals



No. 8355A

Pressed steel back cover with side opening for approved insulated wire entrance accommodating open wiring. Pressed steel front cover, with mounting bracket rigidly attached to a one-piece drawn-brass bell-type sound projector. Wire connections are easily accessible by loosening two screws and removing back. Black enamel finished; ten in a standard package.

Mfrs. No.	Projector	Connection	Voltage	Price Each
8355A	Brass Bell	Open Wiring	*	**$7.30**



No. 8152L

Same as the above, except that it is equipped with a 9 inch conical sound projector.

Mfrs. No.	Projector	Connection	Voltage	Price Each
8152L	9 In. Conical	Open Wiring	*	**$7.00**

Weatherproof Signal

No. 8152S

Pressed steel back and front cover, with mounting bracket attached to front cover. Electrical connection made through wire insulated leads entering front cover. Equipped with one-piece drawn-brass bell-type sound projector rigidly attached to front cover. Black enamel finished; ten in a standard package.

Mfrs. No.	Projector	Connection	Voltage	Price Each
8152S	Brass Bell	Open Wiring	*	**$10.00**

Heavy Duty Weatherproof Signal

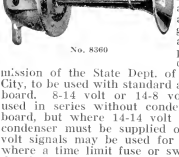
No. 8346H

Cast iron back cover or body, with two mounting lugs, tapped for ½ inch pipe connection. Pressed steel front cover rigidly attached to a one-piece drawn-brass bell-type sound projector. Black enamel finished; ten in a standard package.

Mfrs. No.	Projector	Connection	Voltage	Price Each
8346H	Brass Bell	½ In. Conduit	*	**$10.00**

*Standard voltage on all above signals is 110 volts A. C., but any voltage from 6 to 250 A. C. inclusive furnished at same price. Specify voltage when ordering.

BENJAMIN SIGNALS AND BUZZERS
FIRE ALARM SIGNALS, WEATHERPROOF


No. 8360

Sounding mechanism is of the vibrator type for both D. C. and A. C. circuits. Specially built for use on fire alarm systems operating under stringent regulations and have been approved by the Industrial Commission of the State Dept. of Labor, New York City, to be used with standard approved fire alarm board. 8-14 volt or 14-8 volt signals may be used in series without condenser on the panel board, but where 14-14 volt signals are used a condenser must be supplied on the board. 110 volt signals may be used for open circuit work where a time limit fuse or switch is inserted in the circuit. 8 and 14 volt signals may be used on the same circuit. Tapped for ½ inch conduit, red enamel finished, ten in a standard package.

Mfrs. No.	Projector	Connection	Voltage	Price Each
8360	Brass Bell	½ In. Conduit	*D. C.	**$13.00**
8361	Brass Bell	½ In. Conduit	*A. C.	**11.00**
8864	Brass Bell	½ In. Conduit	8A. C.	**13.00**
8865	Brass Bell	½ In. Conduit	14A. C.	**13.00**
8866	Brass Bell	½ In. Conduit	110A. C.	**13.00**

*Standard voltage is 110 volts, D. C. or A. C., but any voltage from 6 to 250 D. C. or A. C., inclusive, may be specified, without change in price. Specify voltage when ordering.

ALTERNATING CURRENT BUZZERS

These heavy duty buzzers are equipped with vibrator-type mechanism. Vibrations are the result of alternating current cycles and no make and break contacts are required. No adjustments are needed and signal will operate continuously without attention. These signals may be operated successfully under all commercial conditions on multiple or series circuits. Weatherproof casings are recommended for outdoor use.

HEAVY DUTY MINE BUZZERS

Cast brass cover, with three mounting lugs, for conduit type, tapped for ½ inch pipe connection. On open wiring type, 8 inch insulated wire leads are furnished for outside connection. Black enamel finished; ten in a standard package.

No. 8299M

Mfrs. No.	Type	Connection	Voltage	Price Each
8299A	Weatherproof	Open Wiring	110A. C.	**$6.00**
8299M	Weatherproof	½ In. Conduit	110A. C.	**9.00**

OFFICE AND FACTORY BUZZERS

No. 8297A

One-piece pressed steel front cover has side opening with approved insulated wire entrance to accommodate open wiring. Pressed steel back plate, with mounting plates top and bottom. Black enamel finished; ten in a standard package.

8297A Non-Weatherproof, Open Wiring ..... 110A. C. **4.50**

All alternating current buzzers may be wound for voltage as high as 260 volts A. C. at no advance in list price.

BENJAMIN TELECODE RELAYS

No. 8311
Non-Weatherproof Relay with cover removed

No. 8312
Weatherproof Relay with cover in position

In factories, mines, quarries, foundries, machine shops, and other places where there is a great volume of noise, the ordinary telephone bell cannot be heard. With the aid of the Telecode Relay it is possible to utilize Benjamin Industrial Signals on any type of telephone system, and have the calls heard in the most remote corners above the noise.

The Telecode Relay may be equipped for operation on telephone circuits, utilizing either A. C. or D. C. as their ringing energy. For operation on standard telephone circuits, the relay is wound according to resistance, as is standard practice in the telephone industry. In ordering, specify the resistance of telephone bells on line where relay is to be installed. If used with an intercommunicating telephone system, utilizing D. C. for its ringing energy, specify the kind and voltage of the ringing current. The carrying capacity at the contacts of this relay is equal to two Benjamin Industrial Signals, or .4 amp. at 110 volts.

Mfrs. No.	Type	Std. Pkg.	Price Each
8311	Non-Weatherproof	10	**$9.00**
8312	Weatherproof	10	**10.00**

Both Telecode Relays are mounted on porcelain base 4⅜ inches in diameter, and protected with pressed steel cover. Mounting screw holes in base are spaced 2¼ inches on centers.

METHODS OF INSTALLATION

Diag. No. 1
When Relay is connected in multiple with telephone bell

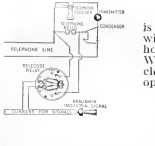


Diagram No. 1—Relay is connected in multiple with telephone bell. This hookup is recommended. When phone rings, relay closes the circuit which operates signal.

Diag. No. 2
When Relay is connected directly across telephone line

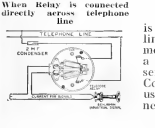


Diagram No. 2—Relay is connected to telephone line at any point. Common battery systems use a 2 M. F. Condenser in series with relay coil. Condenser should not be used on private or magneto systems.

HOLTZER-CABOT ANNUNCIATORS

PATTERN M ELEVATOR—METAL CASE

An improved type, the case being made of cold rolled steel 1/16 inch thick. It is made in sizes up to 30 drops. Where more than 8 drops are required, the signals are placed in a double row. It is furnished with either Gravity or French drops, and a buzzer placed inside the case where it cannot be tampered with. Fastening bolts for attaching annunciator to elevator car are furnished with this pattern. Standard finish is black.

No. 150007

No. 150007

No. of Drops	Gravity In. Wdth.	Gravity In. Hght.	French and AD In. Wdth.	French and AD In. Hght.	Price Each Grav. or French
3	3⅛	10⅞	3⅛	11⅛	**$32.06**
4	3⅛	13⅛	3⅛	13⅛	**34.34**
5	3⅛	15⅜	3⅛	15⅛	**37.24**
6	3⅛	17⅝	3⅛	17⅛	**41.30**
7	3⅛	19⅞	3⅛	19⅛	**44.52**
8	3⅛	22⅛	3⅛	21⅛	**47.74**
10	6⅛	15⅜	6⅛	15⅛	**54.32**
12	6⅛	17⅝	6⅛	17⅛	**59.70**
14	6⅛	19⅞	6⅛	19⅛	**65.98**
16	6⅛	22⅛	6⅛	21⅛	**72.16**
18	6⅛	24⅜	6⅛	23⅛	**79.26**
20	6⅛	26⅝	6⅛	25⅛	**84.36**
22	6⅛	28⅞	6⅛	27⅛	**90.72**
24	6⅛	31⅛	6⅛	29⅛	**95.72**
26	6⅛	33⅜	6⅛	31⅛	**102.00**
28	6⅛	35⅝	6⅛	33⅛	**108.12**
30	6⅛	37⅞	6⅛	35⅛	**112.92**

Not made in intermediate sizes.

UP AND DOWN ELEVATOR—METAL CASE

This annunciator is similar to No. 150007, except that it is arranged for up and down service, and can be furnished with any number of drops desired.

Standard finish is black.

No. 150012

No. of Drops	No. of Floors	Height, Inches *Gravity	Height, Inches *French	Price Each Grav. or French
6	4	13⅛	13⅛	**$44.08**
8	5	15⅜	15⅛	**50.52**
10	6	17⅝	17⅛	**57.10**
12	7	19⅞	19⅛	**62.48**
14	8	22⅛	21⅛	**68.76**
16	9	24⅜	23⅛	**74.94**
18	10	26⅝	25⅛	**82.04**
20	11	28⅞	27⅛	**87.14**
22	12	31⅛	29⅛	**93.50**
24	13	33⅜	31⅛	**98.50**
26	14	35⅝	33⅛	**104.78**
28	15	37⅞	35⅛	**110.90**
30	16	40⅛	37⅛	**115.70**

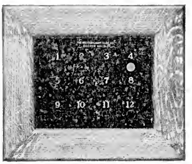
Above 30 drops; price per drop **$2.80.**

*Width of Gravity and French, 6⅛ inches.

No. 150012

HOLTZER-CABOT ANNUNCIATORS

PATTERN F—WOOD OR METAL CASE



Designed for flush mounting; furnished with wood or metal trim; equipped with either Gravity or French drops. Standard finish: wood cases, golden oak; metal cases, brush brass.

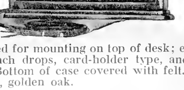
Gravity

No. of Drops	Drops Acr.	Drops Dn.	Outlet Box Size Wdth.	Outlet Box Size Hght.	Outlet Box Size Dpth.	Price Each Wood Case	Price Each Metal Case
4	2	2	10¼	11¾	4 3/16	**$44.86**	**$82.00**
6	3	2	12½	11¾	4 3/16	**48.56**	**85.76**
8	3	3	12½	14	4 3/16	**53.18**	**90.32**
10	4	3	14¾	14	4 3/16	**69.06**	**106.20**
12	4	3	14¾	14	4 3/16	**72.76**	**109.90**
16	4	4	14¾	16¼	4 3/16	**88.48**	**125.62**
20	5	4	17	16¼	4 3/16	**103.42**	**140.68**
25	5	5	17	18½	4 3/16	**113.60**	**150.86**
30	6	5	19¼	18½	4 3/16	**123.79**	**161.02**
Above 30 drops, price per drop						**4.15**	**5.40**

French

No. of Drops	Drops Acr.	Drops Dn.	Outlet Box Size Wdth.	Outlet Box Size Hght.	Outlet Box Size Dpth.	Price Each Wood Case	Price Each Metal Case
4	2	2	10	11½	4 3/16	**$44.86**	**$82.00**
6	3	2	12	11½	4 3/16	**48.56**	**85.76**
8	3	3	12	13½	4 3/16	**53.18**	**90.32**
10	4	3	14	13½	4 3/16	**69.06**	**106.20**
12	4	3	14	13½	4 3/16	**72.76**	**109 90**
16	4	4	14	15½	4 3/16	**88.48**	**125.62**
20	5	4	16	15½	4 3/16	**103.42**	**140.68**
25	5	5	16	17½	4 3/16	**113.60**	**150.86**
30	6	5	18	17½	4 3/16	**123.79**	**161.02**
Above 30 drops, price per drop						**4.15**	**5.40**

DESK—PATTERN D



Arranged for mounting on top of desk; equipped with French drops, card-holder type, and signal buzzer. Bottom of case covered with felt. Standard finish, golden oak.

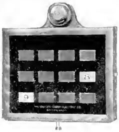
Mfrs. No.	No of Drops	Drops Acr.	Drops Dn.	Description Width In	Description Height In.	Description Thickness	Price Each Grav. or French
150026	4	4	1	12¼	6	3 9/16	**$47.45**
150026	5	5	1	14¼	6	3 9/16	**50.95**
150026	6	6	1	16¼	6	3 9/16	**54.45**
150026	8	4	2	12¼	8	3 9/16	**62.60**
150026	10	5	2	14¼	8	3 9/16	**70.60**
150026	12	6	2	16¼	8	3 9/16	**77.10**
150026	15	5	3	14¼	10	3 9/16	**90.60**
150026	18	6	3	16¼	10	3 9/16	**105.75**

Above 18 drops, prices on application.

Price includes 6 feet only flexible green silk covered cable.

HOLTZER-CABOT ANNUNCIATORS

PATTERN OO HOUSE—WOOD CASE



No. 150024

This is our standard house pattern with plain case. It may be equipped with either Gravity or French drops, arranged and marked as desired. Standard finish, golden oak.

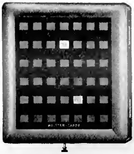
No. of Drops	Drops Acr.	Drops Dn.	Gravity Wdth	Gravity Hght.	French Wdth	French Hght	Price Each
4	2	2	7¼	10¼	7¼	11¼	**$32.42**
6	2	3	7¼	12¾	7¼	13¼	**42.82**
8	2	4	7¼	15	7¼	15¼	**49.92**
10	4	3	12	12¾	11¼	13¼	**56.76**
12	4	3	12	12¾	11¼	13¼	**64.62**
16	4	4	12	15	11¼	15¼	**74.60**
20	5	4	14¼	16	13¼	16¼	**90.48**
25	5	5	14¼	18¼	13¼	18¼	**106.58**
30	6	5	16½	18¼	15¼	18¼	**123.78**

Not made in intermediate sizes.

Above 30 drops, price per drop, **$4.30**.

MARINE PATTERN—WOOD CASE

Door closes on a rubber gasket, back is impregnated with parafine, thus rendering the interior practically impervious to moisture. This annunciator is equipped with either standard Gravity or French drops. Terminals are provided for separate bell, but prices do not include bell or buzzer. Standard finish, golden oak.



No. 150032

No. of Drops	Drops Acr.	Drops Dn.	Gravity Wdth.	Gravity Hght.	French Wdth.	French Hght.	Price Each
8	4	2	14	11¾	13¼	11¼	**$75.70**
10	4	3	14	14	13¼	13¼	**84.78**
12	4	3	14	14	13¼	13¼	**88.10**
16	4	4	14	16¼	13¼	15¼	**103.24**
20	5	4	16¼	16¼	15¼	15¼	**117.30**

Not made in intermediate sizes.

Above 30 drops, price per drop, **$4.90**.

H-C ELEVATOR CALL BUTTONS

Double

Used with up and down annunciators. Contacts are double and positive in action; black oxidized finish; special finishes are extra. Will fit over single gang switch or outlet box cover.

Mfrs. No.	Size, Inches Height	Size, Inches Width	Price Each
150014	5¼	3	**$4.40**

Single

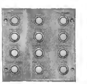
Suitable for ordinary annunciator signaling on all floors, or as an up or a down button on the top or bottom floor where up-down signaling is installed. Otherwise same as the double button.

No. Mfrs.	Height (Size, Inches)	Width (Size, Inches)	Each Price
150015	5¼	3	**$4.22**

HOLTZER-CABOT SIGNALING APPARATUS

PUSH BUTTON PLATES AND BLOCKS

Standard plates have beveled edge and finished brush brass. When so ordered, old brass, polished brass, or black oxidized will be furnished without additional charge; bronze finish, extra. Standard blocks are made of quarter-sawed oak with moulded edges; finish, golden oak. When so ordered, ebony or mahogany finished blocks will be furnished without additional charge.



No. 150048

TYPE M

Metal plate with midget push buttons.

Above 20 buttons, add for each additional button, **$1.75**. Intermediate sizes, same price as next highest size listed.

No. of Buttons	Dimensions, In. Height	Dimensions, In. Width	Price Each
1	4½	2¾	**$3.12**
2	4½	2¾	**4.60**
3	4½	4 9/16	**9.86**
4	4½	4 9/16	**14.02**
6	4¼	5⅜	**21.62**
8	5⅜	5⅜	**25.04**
10	5⅜	6½	**29.12**
12	5⅜	6½	**32.44**
14	6½	6½	**40.96**
16	6½	6½	**47.42**
18	6½	7⅝	**62.48**
20	6½	7⅝	**71.72**

TYPE MW

Metal plate with midget pushes, on wood mat.

No. of Btns.	Dimen., In. Height	Dimen., In. Width	Price Each
1	2½	2½	**$8.90**
2	2½	2½	**9.64**
3	2½	3 9/16	**11.96**
4	2½	3 9/16	**15.82**
6	4½	5⅝	**22.84**
8	5⅝	5⅝	**26.10**
10	5⅝	6¾	**32.84**
12	5⅝	6¾	**35.64**
14	6¾	6¾	**43.76**
16	6¾	6¾	**50.60**
18	6¾	7⅞	**64.90**
20	6¾	7⅞	**78.46**

No. 155052

Above 20 buttons; add for each additional button, **$3.50**. Intermediate sizes, same price as next highest size listed.

TYPE MWB

Metal plate on hollow oak mat, with midget push buttons and green felt-covered weighted base.

No. 155055

No. of Btns.	Price Each	No. of Btns.	Price Each
1	**$13.00**	10	**$45.26**
2	**14.45**	12	**49.90**
3	**18.66**	14	**59.28**
4	**23.32**	16	**68.36**
6	**31.98**	18	**84.52**
8	**36.94**	20	**100.46**

Overall dimensions of mat are same as type MW. Above 20 buttons, add for each additional button, **$4.50**. Intermediate sizes, same price as next highest size listed.

COUCH TELEPHONE SYSTEMS

List of Systems for Private Installations

For apartment house systems,see following page.

PRIVATE LINE SYSTEMS

System PL-A: For service between two stations on short lines. WIRING—(a) Two wires between stations with battery at each end, or (b) Three wires between stations with central battery.

System B-1A4: Common Talking, Code Ringing service for three to eight stations. Conversation limited to one pair of stations at a time. WIRING—Install cable of four wires and multiple to all stations. Central battery and choke coil.

MASTER AND SUB-STATION SYSTEMS

System B-3B (Replacing former System B-3A): Common talking, selective ringing. One master station with sufficient call buttons to call any substation. Sub-stations may call master station only. Made in capacities of four, eight, twelve, sixteen and twenty stations. WIRING—One direct wire from master station to each sub-station and three common wires from master station to all sub-stations. Central battery and choke coil.

System B-3MC: Same as system B-3B with addition of a master call button at the master station to call all sub-stations simultaneously for general orders, a conference or lecture. WIRING—Same as for System B-3B.

System B-33B (Replacing former System B-33A): Same service as System B-3B with addition of an annunciator at the master station to indicate substation calls. WIRING—Two direct wires from master-station to each sub-station and two common wires from master station to all sub-stations. Central battery and choke coil.

System S-438: Same as System B-33B with the addition of a master call button at the master station which calls all sub-stations simultaneously for general call service or emergency signalling. WIRING—Same as for System B-33B.

System B-41A: Selective talking, selective calling service between a master switchboard annunciator and any room telephone. Talking circuit private. WIRING—Three direct, or one common and two direct wires from the master switchboard annunciator to each room telephone. Central battery.

System B-48A: Same service as for system B-41A with addition of plug equipment for cross connecting room telephones at the annunciator switchboard. WIRING—Same as for System B-41A.

INTERCOMMUNICATING SYSTEMS

System B-2A: Common talking, selective ringing service for four, eight, or twelve stations. Conversation limited to one pair of stations at a time. WIRING—Install cable with three more wires than there are call buttons on each telephone and multiple to all stations. Central battery and choke coil.

System B-12: Selective talking, selective ringing service for ten, sixteen or twenty stations. Any number of pairs of stations may converse at one time. WIRING—Install cable with four more wires than there are call buttons on each telephone and multiple to all stations. Separate ringing and talking batteries at central point.

AUTOMATIC PRIVATE EXCHANGE

Couch Autophone System: Service for twenty to one hundred stations from an automatic switchboard through which all station telephones select, ring and talk with each other. Any number of pairs of stations may use the system at one time. Instantaneous operation. Absolute secrecy of conversations. One hundred per cent capacity of simultaneous connections. Conference service. General call service. WIRING—Three direct wires from the automatic switchboard to each station telephone.

COUCH TELEPHONE SYSTEMS

YANKEE 'PHONES

Yankee Wall

Yankee Telephones are especially designed for all short distance, two station service, such as for communication between house and garage, two neighbors, sales counter and stock room, etc. These phones are wired for System PL-A only and may be connected by means of two wires with a battery at each end or by means of three wires with the battery and a No. 1060-A choke coil at any convenient point on the line.

YANKEE WALL SETS

A steel box wall 'phone, finished in black with nickel trimmings, supplied with a watchcase receiver. All interior parts are mounted on a steel frame.

Price Per 'Phone..... $13.35
Price Per Pair..... 26.70

YANKEE HAND SETS

A convenient set for table, wall or desk use. The call button and "Press to talk" key are mounted in the handle of the phone, which is connected by means of a four-foot green cord to a terminal box containing the call buzzer and line terminals. The hand phone is finished in black with nickel trimmings and is supplied with a curved molded mouthpiece.

Yankee Hand

Price Per 'Phone..... $20.00
Price Per Pair..... 40.00

Complete wiring instructions are furnished with each instrument.

TYPE NO. 661 DESK SET

Desk set with call button in base, attached by a five-foot green cord to terminal box containing buzzer and line terminals. Black finish throughout.

Type No. 661

Mfrs No.	For System	Price Each
6615	PL-A	$27.00
6616	B-1A4	27.00
6619	B-3B & B-33B	27.00
6619MC	B-3MC&S-438	28.00
66112	B-41A	27.00
66113	B-48A	27.00

TYPE NO. 161 WOOD BOX WALL SET

A wall set contained in a dark oak box trimmed with black and nickel. This set is supplied with a long receiver, large transmitter and large gongs and is especially adapted to noisy locations.

Type No. 161

Mfrs. No.	For System	Price Each
1615	PL-A	$19.00
1616	B-1A4	19.00
1619	B-3B & B-33B	19.00
1619MC	B-3MC & S-438	20.00
16112	B-41A	19.00
16113	B-48A	19.00

COUCH TELEPHONES

TYPE NO. 271 HAND MICROPHONE TABLE SET

This phone is supplied with a call button and buzzer in the base, and is attached by a five-foot green cord to terminal block. Black finish throughout.

Type No. 271

Mfrs. No.	For System	Price Each
2715	PL-A	$30.00
2716	B-1A4	30.00
2719	B-3B & B-33B	30.00
2719MC	B-3MC & S-438	31.00
27112	B-41A	30.00
27113	B-48A	30.00

TYPE NO. 251 FLUSH METAL WALL SET

A flush plate 6⅝ x 4½ in. supporting a moulded mounting block, upon which all parts of the phone are mounted in such a manner that positive alignment and perfect operation are assured. This mounting block is impervious to moisture and is unaffected by seasonal weather changes. Wall opening 5⅝ x 3½ in. Old brass finish.

Type No. 251

Mfrs. No.	For System	Price Each
2515	PL-A	$13.70
2516	B-1A4	13.70
2519	B-3B & B-33B	13.70
2519MC	B-3MC & S-438	14.70
25112	B-41A	13.70
25113	B-48A	13.70

Iron outlet box for any of above, optional and for conduit work only, $1.80. Wood outlet frame for fastening to laths during building construction. Takes any of above Mfrs. Nos. Supplied gratis if specified when ordering phones, otherwise $0.50.

TYPE NO. 221 METAL BOX WALL SET

This metal box wall set is of the same interior construction as No. 251. Finished in black with nickel trimmings.

Type No. 221

Mfrs. No.	For System	Price Each
2216	B-1A4	$13.70
2219	B-3B & B-33B	13.70
2219MC	B-3MC & S-348	14.70
22112	B-41A	13.70
22113	B-48A	13.70

TYPE NO. 321 HAND MICROPHONE WALL SET

Consisting of a hand phone with talking key in handle, attached by four-foot green cord to metal wall box containing call button, bell and line terminals. Finished in black with nickel trimmings.

Type No. 321

Mfrs. No.	For Systems	Price Each
3216	B-1A4	$21.50
3219	B-3B & B-33B	21.50
3219MC	B-3MC & S-438	22.50
32112	B-41A	21.50
32113	B-48A	21.50

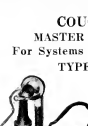
List of systems shown on a preceding page. See subsequent pages for master stations for Systems B-3B, B-3MC, B-33B, S-438, B-41A and B-48A.

COUCH TELEPHONES

MASTER STATION TELEPHONES

For Systems B-3B, B-3MC, B-33B & S-438

TYPE NO. 667 DESK SET


Type No. 667

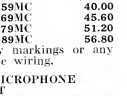
Consisting of a desk set with buzzer in base, attached by five-foot cord to a weighted base "Pushrite" call board containing the call button and line terminals. Desk set finished in black. Pushrite call board, dark oak with nickel trimmings.

No. of Call Buttons	For System B-3B— Mfrs. No.	Price Each	For System B-3MC— Mfrs. No.	Price Each
4	66749	$33.60	66749MC	$35.60
8	66759	36.00	66759MC	40.00
12	66769	39.60	66769MC	45.60
16	66779	43.20	66779MC	51.20
20	66789	46.80	66789MC	56.80

Price does not include any markings or any cable from call board to house wiring.

TYPE NO. 77 HAND MICROPHONE TABLE SET

A table type mounting base containing a buzzer to which is attached by means of a four-foot green cord, a No. 11 Type Hand Phone. A weighted base "Pushrite" call board containing call buttons and line terminals is also attached by means of a five-foot green cord, Telephone, black finish, call board, dark oak with nickel trimmings.


Type No. 77

No. of Call Buttons	For System B-3B— Mfrs. No.	Price Each	For System B-3MC— Mfrs. No.	Price Each
4	7749	$36.60	7749MC	$38.60
8	7759	39.00	7759MC	43.00
12	7769	42.60	7769MC	48.60
16	7779	46.20	7779MC	54.20
20	7789	48.90	7789MC	59.80

Price does not include any markings or any cable from call board to house wiring.

TYPE NO. 64 WALL SET

Type No. 61

A wall telephone equipped with watchcase receiver call buttons, bell and necessary line terminals. Dark oak finish with nickel trimmings.

No. of Call Buttons	For System B-3B— Mfrs. No.	Price Each	For System B-3MC— Mfrs. No.	Price Each
4	6449	$24.00	6649MC	$26.00
8	6459	27.50	6459MC	31.50
12	6469	31.00	6469MC	37.00
16	6479	34.50	6479MC	42.50
20	6489	38.00	6489MC	48.00

Price does not include any markings.

TYPE NO. 1060-A CHOKE COIL

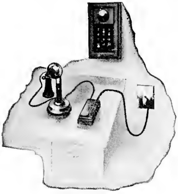
One No. 1060-A choke coil must be used with each of the following systems: PL-A (when using the three wire, single battery system) B-1A4, B-3B, B-33B, B-3MC and S-438.

Type No. 1060-A

Price Each $1.90

COUCH TELEPHONES

TYPE NO. 75 MASTER STATION



Type No. 75

This master station equipment consists of a desk set connected by means of a five foot green cord to a weighted base "Pushrite" call board containing the call buttons, annunciator reset buttons, (also the master call button if for system S-438), and connection terminals for the desk set cord.

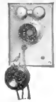
This call board is connected by means of a six-foot green cord to the flush terminal box containing all necessary line connectors. The annunciator contains the call bell, the electrically reset drops, and necessary line connections.

Station Capacity and No. of Drops	Arrangement of Btns.	Number of Reset Buttons	For System B-33B Mfrs. No.	For System B-33B Price Each	For System S-438 Mfrs. No	For System S-438 Price Each
12	1 Row	1	**7512**	**$115.00**	**7512**MC	**$121.00**
16	2 Rows	1	**7516**	**142.00**	**7516**MC	**150.00**
20	2 Rows	1	**7520**	**170.00**	**7520**MC	**180.00**
25	2 Rows	2	**7525**	**206.00**	**7525**MC	**218.50**
30	2 Rows	2	**7530**	**246.00**	**7530**MC	**261.00**

Intermediate sizes bear the same price as the next larger size listed. Above 30 station capacity for each extra station capacity B-33B **$10.00**, S-438 **$10.50**. Diagram or list of annunciator markings should be given with order. List of systems shown on a preceding page. See previous pages for substation phones for systems B-3B, B-3MC, B-33B and S-438.

TYPE NO. 251 FLUSH METAL WALL SET

Room Telephones



Type No. 251

A metal flush plate 6⅜ x 4½ inches mounted on a moulded insulating block which supports all of the working parts of the telephone. The entire face of the phone is finished in old brass. Wall opening $5\frac{5}{16}$x$3\frac{5}{16}$ in.

Mfrs. No	For System	Price Each
25112	B-41A	**$13.70**
25113	B-48A	**13.70**

Iron outlet box for either of above (for conduit work only).

Price Each **$1.80**

Wood frame supplied gratis with each phone at the request of the purchaser. Recommended for new work where conduit is not used.

TYPE NO. 221 METAL BOX WALL SET

Room Telephones

Type No. 221

A metal box wall phone 6⅝ in. high x 4⅛ in. wide x 1⅞ in. deep of identical interior construction as No. 251. Black finish with nickel trimmings only.

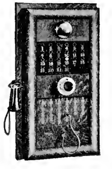
Mfrs. No.	For System	Price Each
22112	B-41A	**$13.70**
22113	B-48A	**13.70**

Other room telephones for Systems B-41A and B-48A will be found on previous pages. List of systems shown on a preceding page.

COUCH TELEPHONES

TELEPHONE CALL ANNUNCIATOR

Systems B-41A and B-48A



Type T Annunciator

These systems provide selective calling, private talking service between the office and rooms in clubs, summer hotels, family and apartment hotels, Y. M. C. A. buildings, large schools and other installations requiring a centrally operated, non-interfering telephone system with annunciator service. In addition to the above, System B-48A also provides for cross-connection of room telephones, which service is under the direct supervision of the attendant.

TYPE T ANNUNCIATOR SWITCHBOARD

When supplied for System B-48A this switchboard is provided with one or more cord pairs to allow for intercommunication between rooms, each cord pair being equipped with single or double supervisory lamps, as specified. Finished in dark oak with nickel trimmings, unless otherwise ordered. An extra charge is made for special finishes.

No of Lines	Horizontal Rows	For System B-41A Mfrs. No.	For System B-41A Price Each	For System B-48A Mfrs. No.	For System B-48A Price Each
16	4	**T1641**	**$144.00**	**T1648**	**$235.00**
20	5	**T2041**	**162.00**	**T2048**	**262.00**
25	5	**T2541**	**180.00**	**T2548**	**295.00**
30	6	**T3041**	**198.00**	**T3048**	**329.00**
36	6	**T3641**	**220.00**	**T3648**	**365.00**
42	7	**T4241**	**241.00**	**T4248**	**387.00**
49	7	**T4941**	**266.00**	**T4948**	**454.00**
56	8	**T5641**	**292.00**	**T5648**	**500.00**
64	8	**T6441**	**357.00**	**T6448**	**585.00**
72	9	**T7241**	**387.00**	**T7248**	**640.00**
81	9	**T8141**	**427.00**	**T8148**	**700.00**
90	10	**T9041**	**459.00**	**T9048**	**765.00**
100	10	**T10041**	**501.00**	**T10048**	**834.00**

Intermediate sizes same price as nearest standard larger size.

Above 100 lines, add to price of 100 line, B-41A **$6.00** per line, B-48A **$8.00** per line.

Single supervisory cord pairs, B-48A only **$20.00** per pair.

Double supervisory cord pairs, B-48A only **$27.00** per pair.

Supervisory cord pairs cannot be furnished for system B-41A.

INTERCOMMUNICATING TELEPHONES

For System B-2A, Common Talking, Selective Ringing

TYPE NO. 1247 METAL BOX WALL SET

Type No. 1247

Black finish with nickel trimmings.

Mfrs. No	No. of Buttons	Price Each
1247	4	**$21.20**

TYPE NO. 2747 HAND MICROPHONE TABLE SET

Type No. 2747

Call buttons and buzzer in base, 6 ft. cord

Black finish N. P. trim.

Mfrs. No	No. of Buttons	Price Each
2747	4	**$40.00**
2787	8	**46.00**

COUCH INTERCOMMUNICATING TELEPHONES

For Systems B-2A, Common Talking, Selective Ringing

TYPE NO. 65

FLUSH METAL WALL SET

Type No. 65

Standard finish, Old Brass. Other finishes extra.

Mfrs. No.	No. of Buttons	Price Each
6517	4	$25.00
6527	8	30.00
6547	12	35.00

Iron outlet box, needed only for conduit wiring. Price Each $3.00

TYPE NO. 660

DESK SET WITH CALL BUTTONS

Type No. 660

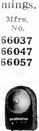
Call buttons in base. Connected by six foot cord to surface type terminal box containing buzzer.

Finish, black with nickel trimmings.

Mfrs. No.	No. of Buttons	Price Each
66037	4	$36.00
66047	8	42.00
66057	12	48.00

TYPE NO. 324

HAND MICROPHONE WALL SET


Type No. 324

Metal box wall set with hand telephone and four call buttons. Can be made to serve as a desk set by fastening on the wall within reach. The hand telephone is attached to the wall box by 4 feet of flexible cord. When not in use the hand telephone hangs on the hook away from the wall.

Black finish with nickel trimmings.

Mfrs. No.	No. of Buttons	Price Each
3247	4	$31.20

TYPE NO. 648

HAND MICROPHONE WALL SET

Type No. 648

Wood box wall set with hand telephone. By fastening the box to the wall within reach from a desk, this telephone may be made to serve for either wall or desk use.

Hand phone black with nickel trimmings. Wall box dark oak with nickel trimmings.

Mfrs. No.	No. of Buttons	Price Each
64817	8	$34.00
64827	12	37.50

TYPE NO. 667

DESK SET WITH CALL BOARD

Type No. 667

Phone finished black throughout. Call board dark oak, nickel trimmings. Buzzer in base of telephone.

Mfrs. No.	No. of Buttons	Price Each
66707	4	$33.60
66717	8	36.00
66727	12	39.60

COUCH INTERCOMMUNICATING TELEPHONES

For Systems B-2A, Common Talking, Selective Ringing

TYPE NO. 64

WOOD BOX WALL SET

Type No. 64

Wall box dark oak with nickel trimmings.

Mfrs. No.	No. of Buttons	Price Each
6427	8	$24.00
6447	12	27.50

TYPE NO. 21

HAND MICROPHONE WITH CALL BOARD

Type No. 21

Hand Microphone with talking key in handle attached by 4 foot green cord to call board containing call buttons, buzzer and line terminals. Phone, black with nickel trimmings. Call board dark oak with nickel trimmings.

Mfrs. No.	No. of Buttons	Price Each
2117	4	$26.00
2127	8	29.50
2137	12	33.00

TYPE NO. 1060-A CHOKE COIL

No. 1060-A

One No. 1060-A Choke Coil must be used in each complete B-2A System.

Price Each $1.90

Prices on Intercommunicating Telephones do not include any button markings. The above listed telephones are equally efficient and any combination of types may be used in the same system.

INTERCOMMUNICATING TELEPHONES

For System B-12, Selective Talking, Selective Ringing

These telephones are equipped with Couch automatic reset buttons and require no answering button. Several pairs of stations may converse simultaneously.

TYPE NO. 39 WALL SET

Type No. 39

For use in industrial plants, schools, hospitals, etc. Also used for residence systems in connection with flush types.

Dark oak with nickel trimmings.

Mfrs. No.	No. of Buttons	Price Each
391	10	$38.00
392	16	46.70
393	20	52.50

TYPE NO. 40

HAND MICROPHONE TABLE SET

Type No. 40

Dark oak with nickel trimmings. Mfrs. Nos. 401, 402 and 403 require that the house wiring be connected directly to the switch box. Mfrs. Nos. 4010, 4020 and 4030 are provided with a flexible cable attached to a terminal box to which the house wiring is connected. Buzzer is contained in the switch box.

Mfrs. No.	No. of Buttons	Price Each
401	10	$53.00
4010	10	65.00
402	16	61.00
4020	16	77.00
403	20	66.50
4030	20	86.50

COUCH INTERCOMMUNICATING TELEPHONES

For System B-12, Selective Talking, Selective Ringing

These telephones are equipped with Couch automatic reset buttons and require no answering button. Several pairs of stations may converse simultaneously.

Type No. 41

TYPE NO. 41
HAND MICROPHONE WALL SET

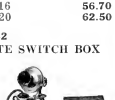
Dark oak with nickel trimmings.

Mfrs. No.	No. of Buttons	Price Each
411	10	$48.00
412	16	56.70
413	20	62.50

TYPE NO. 82
DESK SET WITH SEPARATE SWITCH BOX

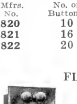
Buzzer is contained in the switch box.

Desk set black finish throughout. Switch box dark oak with nickel trimmings.


Type No. 82

Mfrs. No.	No. of Buttons	Price Each
820	10	$50.70
821	16	58.70
822	20	64.00

TYPE NO. 42
FLUSH METAL WALL SET


Type No. 42

Price includes iron outlet box which can be shipped in advance, or with the telephone.

Old Brass finish. Other finishes special.

Mfrs. No.	No. of Buttons	Price Each
420	10	$48.00
421	16	56.00
422	20	61.00

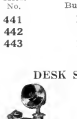
TYPE NO. 44
HAND MICROPHONE DESK SET

A convenient set for attaching to the end of a roll top desk or table. Line wires can be carried inside the tube. Dark oak with nickel trimmings. Buzzer is contained in the switch box.

Type No. 44

Mfrs. No.	No. of Buttons	Price Each
441	10	$59.60
442	16	64.70
443	20	73.70

TYPE NO. 37
DESK SET WITH BUTTONS IN BASE


Type No. 37

Connected by 6 foot cord to dark oak terminal box containing buzzer and line material.

Black with nickel trimmings.

Mfrs. No.	No. of Buttons	Price Each
371	10	$87.50
372	16	97.60
373	20	104.40

Type No. 3214

COUCH REPLY AND CALL TELEPHONES

For System B-12

These sets have been developed to meet the demand for a telephone that may be called by all of the other stations and yet may call but one of these stations. These telephones, like the other B-12 telephones, are equipped with a button which releases automatically when the receiver is returned to the hook. Wiring—Six wires from the telephone to the house cable.

TYPE NO. 3214
HAND MICROPHONE WALL SET

Metal box wall set with Hand Phone, black finish with nickel trimmings.

Price Each $26.00

TYPE NO. 2214
METAL BOX WALL SET

The above listed telephones are equally efficient and any combination of types may be used in the same system. Select types with regards to their application rather than to price. List of systems shown on a preceding page.

Type No. 2214

Price Each $16.00

COUCH AUTOPHONE SYSTEM
STATION TELEPHONES

Type No. 99

Each of the following types of station telephones is supplied with 33, 52 and 103 point calling dials. Specify clearly which size is desired.

Mfrs. No.	Type	Price Each
99	Wall Set	$40.00
990	Desk Set	40.00
991	Hand Microphone Wall set	40.00
994	Hand Microphone Table Set	50.00
995	Flush Metal Wall Set, Residence or Hospital	50.00
996	Weatherproof Box Set Outdoor Service	Special

STORAGE BATTERY

YG60-24 Volt, Standard, sealed in type. Shipped fully charged.

Price Each $116.00

HYDROMETER

For Testing. Specific Gravity Cells.

Price Each $2.00

GENERAL CALL BELLS AND HORNS

S-1 Bell, 4 in. Cow, 24 Volt.
Price Each $12.00
S-2 Bell, 6 in. Weatherproof.
Price Each ..... Special
S-3 Horn, 3½ in., 24 Volt.
Price Each $13.00

Type No. 991

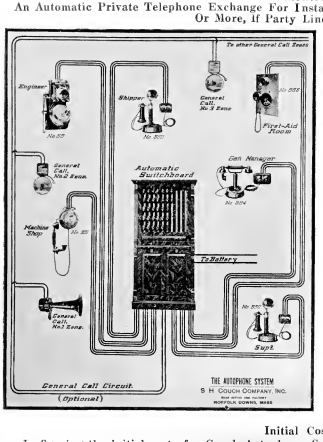
WIRE

Autophone twisted triple cable for inside and outside use. Per 100 ft., price upon application.

COUCH AUTOPHONE SYSTEM

Patented

An Automatic Private Telephone Exchange For Installations Ranging From 20 to 100 Stations, Or More, if Party Lines Are Desired



DISTINCTIVE FEATURES

Instantaneous Operation

Any station can call any other non-busy, within a maximum time of six seconds, by merely operating a selecting dial ONCE. No central operator is required.

Secrecy of Conversation

Access to an engaged line is prevented. Calling party automatically gets busy line signal 100% Capacity of Conversations—Any station may connect with any other non-busy station, regardless of the number of lines already in use.

Conference Service

Several stations may interconnect for private conference and several such conferences may be established at one time.

General Call Service

Horns or special toned bells, throughout the plant, may be operated from any autophone station (or confined to a few, if preferred) to signal, by means of code calls, an executive temporarily absent from his usual station.

Continuity of Service

Service is available at all times of day or night, for the day force, the night force or the night watchmen. The Autophone system performs a 100% twenty four hour day service at all times.

Low Maintenance Cost

The extremely low maintenance cost attached to the Autophone system is principally confined to the charging expense of the 24-volt, 60-amp. hour storage battery which is the total power supply of the system.

Initial Cost

In figuring the initial cost of a Couch Autophone System, the following points should be given due consideration.

(a) The service is far more extensive than other intercommunicating systems.
(b) No switchboard operator is necessary, which totally eliminates the salary item.
(c) No maintenance man is necessary. The battery charging can be handled by anybody—mechanic or clerk.
(d) The triple conductor line wire used in the Autophone system is less expensive than the large multiple conductor cables used in other intercommunicating systems.
(e) The labor cost for making the three connections at each Autophone Station is lower than the connection costs in other intercommunication systems.
(f) The depreciation factor is extremely low.
(g) As a comparison, a thirty line Autophone System equipped for twenty stations averages to cost no more to install than a complete 20 station selective calling, selective talking, intercommunicating system.

COUCH AUTOPHONE APPARATUS—SWITCHBOARDS

Autophone Switchboards are supplied in cabinets of three sizes, namely, 30, 50 and 100 line capacities, and may be either fully or partially equipped with selectors according to requirements. The 30-line size is put up in a wall type cabinet and the 50 and 100-line sizes in floor type cabinets. Stock cabinets are finished dark golden oak.

Mfrs. No.	Selector Capacity	Dimensions of Cabinet Inches: Width	Height	Depth	Price Each: With 10 Selectors Installed	Additional Selectors
F	30	24 3/8	61 1/2	12	$720.00	$37.00
G	50	38	85	12	950.00	39.00
H	100	68	85	12	1450.00	42.00

GENERAL CALL UNITS

All switchboards are regularly wired for one general call unit for operating bells or horns. This unit is not installed unless ordered. It can be added at any time.

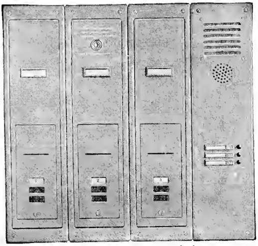
Mfrs. No.		Price Each
0091-A	General Call Unit for one circuit	$25.00
0091-B	General Call Unit for three Circuits	40.00

BATTERY CHARGING SETS

Mfrs. No.		Price Each
A-1	Tungar Rectifier with regulating switch and ammeter for charging YG—60 battery from 110-115 volt 60-cycle lighting or Power circuit	$182.00

Completed descriptive literature of the Couch Autophone System will be forwarded on request.

COUCH TILTING MAIL BOXES
FOR APARTMENT HOUSES



A Group of Three Couch Tilting Mail Boxes (Patented) and Cordless Vestibule Telephone

Couch Tilting Mail Boxes will be shipped to the customer completely assembled in gangs of three or more per gang, ready for mounting in the wall opening.

Couch Vestibule Telephones are designed to nest with the Tilting Mail Boxes and are made in two sizes, namely, 5 inches wide by 19½ inches high, the dimensions of one mail box, and 10 inches wide by 19½ inches high, the dimensions of two mail boxes. Each size will be equipped with the necessary buttons for calling suites and janitor, a transmitter, and any of the following types of receivers—armored cord, swing arm or cordless loud speaker.

MAIL BOXES

Group Mfrs. No.	No. of Mail Bxs.	Price Each	Group Mfrs No.	No. of Mail Bxs.	Price Each
333	3	**$40.80**	**337**	7	**$95.20**
334	4	**54.40**	**338**	8	**108.80**
335	5	**68.00**	**339**	9	**122.40**
336	6	**81.60**	......	..	....

Above prices are based at **$13.60** per box. By multiplying this base price by the number of boxes the total price for any quantity of boxes may be obtained.

VESTIBULE TELEPHONES
Common Talking and Sectional Talking Systems
Size 5x9½ Inches

Mfrs. No.	Type	Price Each
295	Armored Cord Receiver	**$25.00**
295-A	Swing Arm Receiver	**40.00**
295-C	Cordless or Loud Speaker	**37.00**

Size 10x19½ Inches

Mfrs. No	Type	Price Each
2910	Armored Cord Receiver	**$25.00**
2910-A	Swing Arm Receiver	**40.00**
2910-C	Cordless or Loud Speaker	**37.00**

Above prices include a janitor button, if specified, but no suite button. Each suite button **$0.70.**

The 5x19½ size is not made above 18 suite buttons. The 10x19½ size is not made above .... suite buttons.

Note.—Standard finish is bronze brass. An extra charge is made for other finishes depending on kind and quantity.

COUCH TILTING MAIL BOXES
FOR APARTMENT HOUSES
COMPLETE VESTIBULE OUTFITS
SINGLE ROW MOUNTING

No. of Suites	Grouping: Mail Boxes	Grouping: Teleph. No.	Grouping: Teleph. Size, In.	Dimens., In.: Overall Width	Dimens., In.: Wall Cut Width	*Price Each
3	3	1	5	20	19¼	**$67.90**
4	4	1	5	25	24¼	**82.20**
5	5	1	5	30	29¼	**96.50**
6	6	1	5	35	34¼	**110.80**
7	7	1	5	40	39¼	**125.10**
8	8	1	5	45	44¼	**139.40**
9	9	1	5	50	49¼	**153.70**
10	10	1	5	55	54¼	**168.00**
11	11	1	5	60	59¼	**182.30**
12	12	1	5	65	64¼	**196.60**
13	13	1	5	70	69¼	**210.90**
14	14	1	5	75	74¼	**225.20**
15	15	1	5	80	79¼	**239.50**
16	16	1	5	85	84¼	**253.80**
17	17	1	5	90	89¼	**268.10**
18	18	1	10	95	94¼	**282.40**
19	19	1	10	105	104¼	**296.70**
20	20	1	10	110	109¼	**311.00**
21	21	1	10	115	114¼	**325.30**
22	22	1	10	120	119¼	**339.60**
23	23	1	10	125	124¼	**353.90**
24	24	1	10	130	129¼	**368.20**

*Price includes telephone with armored cord receiver.

Wall depth required for all sizes listed above, not less than 4⅝ inches. Height of wall cut for all sizes listed above, 17½ inches. Height overall for all sizes listed above, 19½ inches. Prices cover outfits for common talking and selective talking systems. Add for substituting telephone with swing arm receiver, **$15.00.** Add for substituting telephone with cordless loud speaker, **$12.00.**

DOUBLE ROW MOUNTING

No. of Suites	Grouping: Upper Row: Mail Boxes	Upper Row: Teleph No.	Upper Row: Teleph Size, In.	L. Row: Mail Boxes	Dimens., In.: Overall Width	Dimens., In.: Wall Cut Width	*Price Each
13	6	1	5	7	35	34¼	**$210.90**
14	6	1	10	8	40	39¼	**225.20**
15	7	1	5	8	40	39¼	**239.50**
16	7	1	10	9	45	44¼	**253.80**
17	8	1	5	9	45	44¼	**268.10**
18	8	1	10	10	50	49¼	**282.40**
20	9	1	10	11	55	54¼	**311.00**
22	10	1	10	12	60	59¼	**339.60**
24	11	1	10	13	65	64¼	**368.20**
26	12	1	10	14	70	69¼	**396.80**
28	13	1	10	15	75	74¼	**425.40**
30	14	1	10	16	80	79¼	**454.00**
32	15	1	10	17	85	84¼	**482.60**
34	16	1	10	18	90	89¼	**511.20**
36	17	1	10	19	95	94¼	**539.80**

*Price includes telephone with armored cord receiver.

Wall depth required for all sizes listed above not less than 4⅝ inches. Height of wall cut for all sizes listed above, 37 inches. Height overall for all sizes listed above, 39 inches.

The extreme button capacity of 10 inch telephone plate for common talking and sectional talking systems is in excess of thirty-six suites but all listings above thirty-six suites are omitted for the reason that capacities above that number are rarely required and such requirements are considered as special.

COUCH APARTMENT HOUSE SUITE TELEPHONES

For Common Talking, Sectional Talking and Non-Interfering Systems

TYPE NO. 222
METAL BOX WALL SET

Type No. 222

The construction of this telephone is identical with that of No. 252, described below, except the works are mounted in a pressed steel box instead of mounted on a plate. The base has a slot in each end and a hole through the center to take care of either exposed or concealed wiring.

Common Talking or Sectional Talking

Mfrs. No.	Dimen. of Box, In. Lgth.	Wdth.	Dpth.	No. of Buttons	Price Each
2219	6⅝	4⅛	1⅞	1	**$13.70**
2229	6⅝	4⅛	1⅞	2	**15.00**
2239	6⅝	4⅛	1⅞	3	**16.30**
		Non-Interfering			
22121	6⅝	4⅛	1⅞	1	**13.70**
22221	6⅝	4⅛	1⅞	2	**15.00**
22321	6⅝	4⅛	1⅞	3	**16.30**

Add letter C to Mfrs. No. if system includes a Cordless Vestibule Telephone. Finish of box is dull black enamel with nickel trimmings.

Type NO. 252
FLUSH METAL WALL SET

These telephones are equipped with a heavy moulded block especially designed for the purpose of carrying the bell movement, switch hook, push buttons, etc. The gong posts form a part of this moulded block and thus provide fixed adjustment for the gongs.

All parts are electrically insulated from the front plate.

Spring washers are used under all mounting screws.

The back of the instrument is enclosed by a heavy tin casing. This is omitted, however, when the telephone is ordered for use with type R Metal outlet box.

Type No. 252

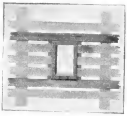
No. of Buttons	Common Talking or Sectional Talking Mfrs. No.	Price Each	Non-Interfering Mfrs. No.	Price Each
1	**2519**	**$13.70**	**25121**	**$13.70**
2	**2529**	**15.00**	**25221**	**15.00**
3	**2539**	**16.30**	**25321**	**16.30**

Add letter C to Mfrs. No. if system includes Cordless Vestibule Telephone. Finish is brush brass. Other finishes extra.

Dimensions of plate, 6⅜ in. high, 4½ in. wide.

COUCH APARTMENT HOUSE SUITE TELEPHONES

TYPE W OUTLET FRAME



Type W

A stout wooden frame of the right dimensions to take No. 252 telephone. Quickly installed by nailing it to a couple of laths and then nailing the laths to the studding ahead of the lathers.

Price Each ....**Special**

TYPE R METAL OUTLET BOX

Type R

The use of this box is recommended if wiring is to be run in conduit; otherwise the box is not necessary. There are two ⅞-inch holes in each end of the box. Outside dimensions, 3⅜ inches wide, 5⅝ inches high, 3⅛ inches deep.

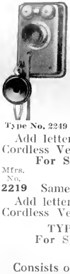
Price Each **$1.80**

List of systems for Types Nos. 222 and 252 shown on a preceding page.

COUCH APARTMENT HOUSE JANITOR TELEPHONES

For Common Talking and Sectional Talking Systems

TYPE NO. 2249 ANSWERING SETS



Type No. 2249

For System B-30A, Common Talking

Consists of metal box equipped with telephone, a bell which can be rung from any suite, also from the vestibule if desired, and a button for operating the front door opener.

No means are provided for calling any station from this instrument.

Mfrs. No.	Price Each
2249..	**$13.70**

Add letter C to Mfrs. No. if system includes a Cordless Vestibule Telephone.

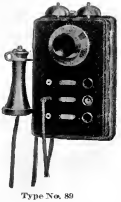
For System B-31A, Common Talking

Mfrs. No.		Price Each
2219	Same as Regular Suite Phone.............	**$13.70**

Add letter C to Mfrs. No. if system includes a Cordless Vestibule Telephone.

TYPE NO. 89 ANSWERING SETS
For System B-34A, Sectional Talking

Consists of cabinet equipped with telephone and indicating and switching equipment for two or more sections.



Type No. 89

Mfrs. No.	Sections	Price Each
892	2	**$50.50**
893	3	**58.00**
894	4	**65.50**
89S	Additional Section	**7.60**

Add letter C to Mfrs. No. if system includes a Cordless Vestibule Telephone.

COUCH APARTMENT HOUSE JANITOR TELEPHONES

For Common Talking and Sectional Talking Systems

TYPE NO. 877
ANSWERING AND CALLING SETS
For System B-30A, Common Talking

Type No. 877

Consists of cabinet equipped with telephone and buttons to any desired number for calling the suites, and a button for operating the front door opener.

Mfrs. No.	No. of Buttons	Price Each
877	4	$20.00
877-B	Additional Call Button	1.00

Add letter C to Mfrs. No. if system includes a Cordless Vestibule Telephone.

Note.—No. 877 may also be used for System B-300A in connection with Style D, Print 2, Annunciator.

TYPE NO. 91
ANSWERING AND CALLING SETS
For System B-34A, Sectional Talking

Type No. 91

Consists of an oak cabinet equipped with telephone and indicating and switching equipment for a system divided into two or more sections.

A standard section includes equipment for six suites and consists of a drop to indicate the section from which a call is made; a jack or key for connecting the janitor's phone to the section; a button for operating the front door lock, and six buttons for calling corresponding suites.

Mfrs. No.	Sections	Buttons Per Section Suites	Door	Total Drops	Total Buttons	Price Each
911	2	6	1	2	14	$84.00
912	3	6	1	3	21	108.00
913	4	6	1	4	28	130.00
914	5	6	1	5	35	152.00
915	6	6	1	6	42	176.00
91-S	Additional section for six suites and one vestibule					24.00
91-B	Additional button for any section					1.40

Add letter C to Mfrs. No. if system includes Cordless Vestibule Telephones.

COUCH APARTMENT HOUSE JANITOR TELEPHONES

For Common Talking, Sectional Talking and Non-Interfering Systems

TYPE NO. 84
For System B-300A, Common Talking

Type No. 81

Consists of dark oak cabinet equipped with telephone, drops for indicating calls from the suites and from the vestibule; buttons for calling the suites, and a button for operating the front door opener.

Mfrs. No.	No. of Lines	Price Each
841	16	$144.00
842	20	162.00
843	25	180.00
844	30	198.00
845	36	220.00
846	42	241.00
847	49	266.00
84L	Additional line	5.00

Add letter C to Mfrs. No. if system includes a Cordless Vestibule Telephone.

Note.—A two-piece outfit consisting of No. 877 Telephone and Style D, Print 2, Annunciator may be used in place of No. 84 one-piece outfit.

TYPE NO. 92
For System B-35A, Sectional Talking

Consists of dark oak cabinet equipped with telephone, drops for indicating calls from the suites and vestibules; buttons for calling the suites and buttons for operating the front door openers, and jacks or keys for switching the telephone to any desired section.

A standard section includes equipment for six suites and one vestibule but any or all sections can be equipped for any desired number of suites.

Mfrs. No.	Sections	Suites Per Section	Vestibules Per Section	Total Station Capacity	Price Each
921	2	6	1	14	$145.00
922	3	6	1	21	170.00
923	4	6	1	28	198.00
924	5	6	1	35	220.00
925	6	6	1	42	244.00
92-S	Additional section for six suites and one vestibule				30.00
92-L	Additional line for any section				6.00

Add letter C to Mfrs. No. if system includes Cordless Vestibule Telephones.

TYPE NO. 72
For System B-7AA, Non-Interfering

Equipment is the same as for No. 84, except that jacks are substituted for call buttons. Calls are made or answered on any line by plugging into a corresponding jack. A door opener button is provided for each front vestibule.

Mfrs. No.	No. of Lines	Price Each	Mfrs. No.	No. of Lines	Price Each
721	16	$144.00	724	30	$198.00
722	20	162.00	725	36	220.00
723	25	180.00	726	42	241.00
.....	...	.....	727	49	266.00

72L additional line $6.00. Slight increase in price for Cordless Systems.

COUCH APARTMENT HOUSE LAUNDRY TELEPHONES

TYPE NO. 2259 ANSWERING SET
For System B-30A, Common Talking

Type No. 2259

Consists of a metal box equipped with telephone and a bell which can be rung from any suite.

No station can be called from this instrument.

Price Each.....$13.70

For Systems B-34A and B-35A, Sectional Talking

Same construction as above. A separate instrument must be used for each section and connected to the talking circuit which is common to the suites assigned to its section.

Mfrs. No.		Price Each
*2259	For Systems B-30A, B-34A, and B-35A	$13.70

TYPE NO. 649
ANSWERING AND CALLING SET
For System B-30A, Common Talking

Consists of a cabinet equipped with telephone, a bell to be rung from any suite and buttons for calling the associated suites.

Type No. 649

For Systems B-34A and B-35A, Sectional Talking

Same construction as above. A separate instrument must be used for each section and connected to the talking circuits of the suites assigned to its section.

Mfrs. No.	No. of Buttons	Price Each
*649	4	$19.00
649-B Additional Button ..		1.00

TYPE NO. 875 TRADESMEN'S CALLING SETS
For System B-30A, Common Talking

Consists of a cabinet equipped with a telephone and buttons for calling associated suites.

For Systems B-34A and B-35A, Sectional Talking

Same construction as above. One required for each rear entrance in the system and connected with the talking and calling circuits of the associated suites.

Type No. 875

Mfrs. No.	No. of Buttons	Price Each
*875	4	$17.00
875-B Additional Button		1.00

*Add letter C to Mfrs. No. if system includes Cordless Vestibule Telephones.

COUCH APARTMENT HOUSE TELEPHONES

TRADESMEN'S CALLING SETS
TYPE NO. 76
For System B-7AA, Non-Interfering

Similar to No. 875 but equipped with buttons which after being pressed to ringing position return to talking position for direct talking circuit with the suite called and then when receiver is hung up automatically release and break the connection.

Mfrs. No.	No. of Buttons	Price Each
760	10	$40.00
761	16	52.00
762	22	60.00
763	28	76.00
764	34	88.00

Slight increase in price for Cordless System.

COUCH TELEPHONE APPARATUS HAND TELEPHONES

NO. 11 KEYLESS TYPE

Type No. 11

For use with a telephone set having a hook switch for controlling the talking circuit and supporting the Hand Phone.

Steel core with moulded metal end fittings and moulded insulated grip.

Finish, black with nickel trimmings.

Mfrs. No.	Wiring	Receiver	Price Each
110	Print 210	D.C.	$13.30
111	Print 210	Pol.	13.30
112	Print 211	Pol.	13.30

NO. 13 KEY TYPE

All metal handle. Fitted with talking key and ringing button designed for two station battery call sets.

Type No. 13

Equipped with 4-foot cord. Finish, black with nickel trimmings.

Mfrs. No.	Wiring	Receiver	Price Each
130	2115	D.C.	$18.00
1300	2115	D.C.	18.00

No. 130 has curved mouthpiece.
No. 1300 has flush mouthpiece.

NO. 15 KEY TYPE

Type No. 15

Same construction as No. 13, but has no ringing button.

Mfrs. No.	Wiring	Receiver	Price Each
150	Print 212	D.C.	$15.30
151	Print 212	Pol.	15.30
152	Print 213	D.C.	15.30
153	Print 213	Pol.	15.30
154	Print 214	Pol.	15.30

HAND TELEPHONE PARTS

Mfrs. No.		Price Each
48650	Receiver Cap	$0.40
611	Receiver Diaphragm	.10
01487	Curved Mouthpiece	.50

KELLOGG MAGNETO TELEPHONES

No. 2809

Magneto telephones are wired for a condenser in the receiver circuit. Each telephone is furnished with a bakelite receiver shell and a bakelite mouthpiece. All Magneto telephones are convertible to common battery.

WALL TYPE

Mfrs. No.	Ohms Rec.	Mfrs. No.	No. Bars	Mfrs. No.	Transmitter	Arm	Hook Switch	Ind. Coil	Condenser	Receiver
F2809	1000	78-A	3	15	22-LC	42	103	28-C	....	F41-A
F2812	1600	78-D	5	53	22-LC	42	103	28-C	....	F41-A
F2859	2500	78-G	5	53	22-LC	42	103	28-C	....	F41-A
F2816	1600	78-D	5	53	22-LC	42	103	28-C	28	F41-A
F2880	2500	78-G	5	53	22-LC	42	.....	28-C	28	F41-A
F2820	1600	78-D	5	59	22-LC	42	103	28-C	28	F41-A

RESIDENCE TYPE

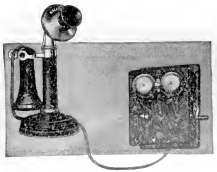
No. 1809

These sets are intended for use where a smaller telephone than the regular compact wall set is desired or required because of limited mounting space.

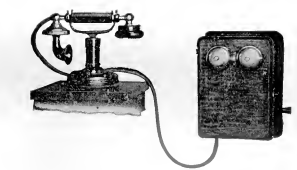
Mfrs. No.	Ohms Rec.	Mfrs. No.	No. Bars	Mfrs. No.	Transmitter	Arm	Hook Switch	Ind. Coil	Condenser	Receiver
F1809	1000	78-A	3	15-AC	64-LC	41	103	28-C	....	F41-A
F1812	1600	78-D	5	53-AC	64-LC	41	103	28-C	....	F41-A
F1859	2500	78-G	5	53-AC	64-LC	41	103	28-C	....	F41-A
F1816	1600	78-D	5	53-AC	64-LC	41	103	28-C	28	F41-A
F2805	1000	79-A	3	15-AC	64-LC	41	103	28-C	....	F41-A

DESK STAND TYPES

The following are popular combinations of the Kellogg unbreakable, in ordinary service, desk stand and the compact, efficient desk set box. The cabinet is heavy quartered oak, thoroughly seasoned.



Desk Stand Type



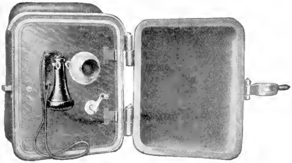
Grabaphone Type

Set Mfrs. No.	Desk Stand Mfrs. No.	Conductor	Cord No.	Receiver	Transmitter	Desk Set Box Mfrs. No.	Ringer Ohms	Generator No Bar Alternating	Ind Coil	Condenser	Push Button
F- 9	F-84	3	F-150D	F-41A	64LC	F-2328	78A	1000	15-3	28	....	....
F-12	F-84	3	F-150D	F-41A	64LC	F-2361	78D	1600	53-5	28	....	....
F-59	F-84	3	F-150D	F-41A	64LC	F-2362	78G	2500	53-5	28	....	....
F-16	F-84	3	F-150D	F-41A	64LC	F-2370	78D	1600	53-5	28	28C½MF	....
F-80	F-84	3	F-150D	F-41A	64LC	F-2371	78G	2500	53-5	28	28C½MF	....
F-24	F-84	3	F-150D	F-41A	64LC	F-2376	78D	1600	53-5	28	28C½MF	5
F-81	F-84	3	F-150D	F-41A	64LC	F-2411	78G	2500	53-5	28	28C½MF	5

GRABAPHONE TYPE

F- 9G	F-115	3	F-150D	.....	F-11LC	F-2328	78A	1000	15-3	28	.....	....
F-12G	F-115	3	F-150D	.....	F-11LC	F-2361	78D	1600	53-5	28	.....	....
F-59G	F-115	3	F-150D	.....	F-11LC	F-2362	78G	2500	53-5	28	.....	....
F-16G	F-115	3	F-150D	.....	F-11LC	F-2370	78D	1600	53-5	28	28C½MF	....
F-80G	F-115	3	F-150D	.....	F-11LC	F-2371	78G	2500	53-5	28	28C½MF	....
F-24G	F-115	3	F-150D	.....	F-11LC	F-2376	78D	1600	53-5	28	28C½MF	5
F-81G	F-115	3	F-150D	.....	F-11LC	F-2411	78G	2500	53-5	28	28C½MF	5

KELLOGG MINE TELEPHONE



In mine telephone service as well as any other, reliable telephone equipment is essential. Every mine, whether it consists of just a few and short galleries, or is a long established plant with deep shafts and many galleries, requires a dependable telephone system.

Kellogg standard telephone equipment is used in these mine sets assuring clear transmission and signaling. The high powered generator furnishes a ringing current of large volume, sharply ringing the farthest telephone or clearly signaling the operator.

The malleable iron door opens on strong hinges and is equipped with heavy malleable iron clasp-handle, so that it can be securely locked with ordinary padlock.

Can be mounted to the mine supports or gallery timbering by means of bolts or screws in four holes drilled in back. This equipment is also ideal for service railway yards, where a rigid, reliable telephone is desired.

Protected from gas, acid fumes, dampness and rough usage by heavy iron case. A gasket placed between case and door, makes the set moisture proof. The large, loud ringing gongs are protected by a heavy hood provided with weatherproof openings which allow the sound from the ringers to be heard at a considerable distance. Iron case is 16x17¾x17½ inches deep.

Mfrs. No	Ringer Ohms	Trans.	Generator Bars	Ind. Coil	Wt. Lb.	Price Each
2868	1000	32L	4	28C	97	**$52.50**
2832	1600	32L	5	28C	97	**52.90**
2883	2500	32L	5	28C	98	**53.15**

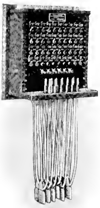
HOLTZER-CABOT TESTING SETS

PORTABLE TESTING MAGNETOS

Used by electric power companies and electrical contractors in locating grounds, open circuits, ets. The cabinet is quarter-sawed golden oak, the top, bottom and sides dovetailed and glued together. Corners are heavily reinforced. Equipped with generators and ringer movements and bells mounted inside the cabinet.

Mfrs. No	Resist. Ohms	Dimensions, Inches Height	Width	Depth	Wt. Lb.	Price Each
153010	10000	8⅛	5½	4¾	9¼	**$41.20**
153035	35000	8⅛	5½	4¾	9¼	**42.12**
153_50	50000	8⅛	5½	4¾	9¼	**43.12**
153100	100000	8⅛	6½	6¼	12	**52.40**
153109	For Visual Signal, add					**3.85**

KELLOGG SWITCHBOARDS



No. 17A

MAGNETO WALL TYPE

No. 17A switchboard is for systems of not more than 34 lines. It is arranged for 30 local and four toll lines; six cord circuits, key for ringing, listening and ring back features. It is strongly built and simple to operate. Equipped with standard Kellogg apparatus.

No. 7A is for systems of not more than 50 lines. This board is operated the same as standard floor type boards and is ideal for small exchanges where a wall type board is desired. This wall cabinet, furnished in oak or walnut, has a capacity of 50 lines and is used for grounded or metallic line service. Has 5 single supervisory cord circuits, with single listening and ringing keys, 5 bar hand generator and night alarm with switch for code and regular ringing. No arresters are included. Line cable extends 12 feet from top of cabinet. Suspended type transmitter and 41-A receiver operator's set is standard. A grabaphone, instead of suspended transmitter and receiver, will be furnished when specified.

Mfrs. No.	Description	Price Each
23-A	20 Line Wall, 10 per strip, D&J	....
17-A	34 Line Wall, 10 per strip, D&J	....
29-A	12 Line Wall, 3 per strip Ringer, D&J	....
7-A	50 Line Wall, 5 per strip, D&J	....

Prices upon application.

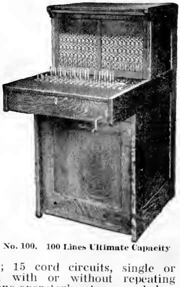
STANDARD MAGNETO TYPE

No. 100—One Hundred Line Capacity

One Position—Non-Multiple—Low Key Shelf

The No. 100 magneto switchboard is practically the same as the No. 50 except that the cabinet is a trifle wider to take care of the ultimate capacity of 100 lines.

The drops and jacks are mounted ten per strip in two panels, 50 per panel. Height 45¼ inches, depth 35 inches, width 25 1/16 inches.



No. 100. 100 Lines Ultimate Capacity

The No. 100 board is wired as follows:

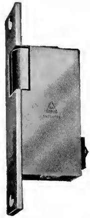
100 lines combined jacks and drops (10 per strip) as specified; 15 cord circuits, single or double supervision with or without repeating coils, as specified; one operator's set, suspended or breast plate type transmitter, as specified; one generator circuit; one night alarm.

Prices upon application.

EDWARDS ELECTRIC DOOR OPENERS

Schedule E

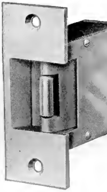
All door openers except Nos. 9 and 52 can be supplied with release check so they may be used where air checks are employed, for which add to list **$2.00.** All door openers except Nos. 1541 and 1542 may be used on either right or left hand doors. Are wound to two ohms resistance but can be furnished wound to higher resistance as shown below in special resistance table.



No. 9

Economy mortise type; solid nose. Made of heavy pressed steel, heavily brass plated. Width, 3⅝ inches; depth, 1¾ inches; thickness, 1 inch; nosing opening, $1\frac{3}{16}$ inches; face plate, 5⅞x1¼ inches. No. 89 pushout spring included.

Mfrs. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
9	50	110	**$3.10**

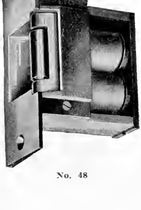


No. 154

Mortise type; roller nose; for heavy doors; requires a smaller mortise than the Economy. Width, 2 inches; depth, 2⅞ inches; thickness, 1⅛ inches; nosing opening, 1¼ inches; face plate, 1¼x3⅜ inches. No. 79 pushout spring included.

Mfrs. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
154	10	27	**$5.65**
Nojar, Mortise Type			
155	10	27	**4.95**

No. 155, Nojar, mortise type has solid nose otherwise same as No. 154.



No. 48

Mortise type, roller nose; extra heavy of solid bronze. For places where unusually reliable and durable openers are needed. Width, 2¼ inches; depth, 2⅝ inches; thickness, $1\frac{7}{16}$ inches; nosing opening, 1⅛ inches; face plate, 1½x3⅞ inches. No. 89 pushout spring included.

No. 48A, same as above only dimensions are: Width, 2⅝ inches; depth, 2⅝ inches; thickness, $1\frac{7}{16}$ inches; nosing opening, 1½ inches; face plate, 1½x4 inches.

Mfrs. No.	Std. Pkg.	Wt.Lbs. Each	Price Each
48	**1**	**1**	**$31.00**
48A	**1**	**1**	**34.00**

EDWARDS ELECTRIC DOOR OPENERS

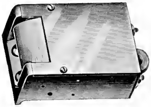
Schedule E

No. 1542

Mortise type, with roller nose. Face plate is extended to provide space for mortise for dead bolt. A sketch of striking plate is required with order, otherwise no screw or bolt openings will be provided. Width, 2 inches; depth, 3⅞ inches; thickness, 1⅛ inches; nosing opening, 1¼ inches; brass face plate, 1½x6⅜ inches. No. 79 pushout spring included.

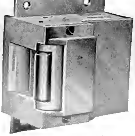
Mfrs. No.	Std. Pkg.	Wt. Lbs. Each	Price Each
1541	1	1	**$10.30**
With Solid Nose			
1542	1	1	**9.25**

Rim type, solid nose; for surface locks, thin doors, etc. Width, 2 in.; depth, $2\frac{3}{16}$ in.; thickness, 1⅛ in.; nosing opening, 1¼ in.; brass front. No. 79 pushout spring included.



No. 152

Mfrs. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
152	10	7	**$6.00**
Arranged for Surface Conduit			
152A	1	....	**25.00**



No. 50

Rim type, for surface or rim locks, thin door, etc. Width, 2¼ in.; depth, 2⅝ in.; thickness, 1 in.; nosing opening, 1⅛ in. No. 89 pushout spring included. No. 50A is the same as above except only nosing opening is 1½ in.

Mfrs. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
50	1	....	**$31.00**
50A	1	....	**34.00**

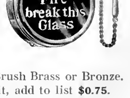
SPECIAL RESISTANCE

Ohms	Up to 20	21 to 50	51 to 75
Add to List Prices........	**$1.00**	**$1.25**	**$1.50**

BREAK GLASS FIRE ALARM BOXES

SURFACE TYPE

Mfrs. No.		Price Each
77	Open-circuit Fire Alarm Box, diameter 3¾ inches, with hammer and chain	**$2.45**



Finish: Polished Brass, Brush Brass or Bronze.

Arranged for closed circuit, add to list **$0.75.**

Full information furnished on request, covering Fire Alarm Boxes and Accessories.

HOLTZER-CABOT HOSPITAL SIGNAL SYSTEMS

Signaling apparatus listed is designed for operation on 10 to 12 volts A. C. or D. C. When ordering state current available. Stations are arranged for both lamp and buzzer calls and are designed for operation with all of our lamp annunciators, corridor lamp and pilot lamp and buzzer stations. Buzzers require but one common wire throughout and can be shut off the system or eliminated from individual patients' stations without trouble.

LOCKING AND RESETTING BUTTONS

By simply pressing this button all necessary operations are done mechanically without delays or other complicated switching apparatus. After button is pushed in by patient it is locked until reset by nurse.

Mfrs No	Description	Price Each
162001	Locking and Resetting Button	$3.60

CALLING AND RESETTING STATIONS

Private Room

For private rooms but may also be used in wards where no bed lamps are required. Furnished with 8 foot cord, plug and locking button. Will fit any standard single gong switch box or outlet box cover.

Mfrs. No	Price Each
162002	$10.56

WARD

The same as above but with bullseye signal. Bullseye is removable so lamp may be renewed without taking plate from wall. Will fit any standard deep type single gang switch box or cover 1¹³⁄₁₆x2⅞ inch opening and 2¾ inches deep. With 8 feet of cord.

Mfrs. No	Price Each
162003	$14.58

Emergency Private Room

Similar to stations listed above with addition of emergency locking button mounted in the plate. Emergency button is for use in critical cases to summon the doctor or another nurse. Will fit same size boxes as No. 162003. With 8 feet of cord.

Mfrs. No.	Price Each
162004	$17.08

Emergency Ward

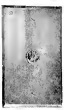
The same as No. 162003, with the addition of an emergency button to summon doctor or another nurse in critical cases. Will fit standard deep type, two-gang switch box or cover having an opening 3¹³⁄₁₆x2⅞ inches and 2¾ inches deep.

Mfrs. No.	Price Each
162005	$21.60

Note. All plates are supplied in brush brass, or white enamel as specified.

HOLTZER-CABOT HOSPITAL SIGNAL SYSTEMS

WALL TYPE CALLING STATIONS



Designed for use in toilets, operating rooms, etc. Not equipped with cord and plug but has a locking button mounted on the plate. Will fit any standard, deep single gang switch box or cover.

Mfrs. No.	Price Each
162006	$8.56

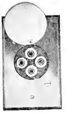
CALLING AND EMERGENCY STATIONS

This is the same as No. 162006, but with emergency locking push button mounted under calling button. Will fit any standard, deep single gang switch box or cover.

Mfrs. No	Price Each
162007	$14.56

BALCONY CALLING STATIONS

Weatherproof

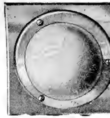


Designed for exposed locations, such as balconies and porches. Furnished with 15 foot cord and will fit any standard, single gang switch box with cover not less than 2½ inches deep.

Mfrs. No.	Price Each
162010	$17.60

NURSES' SIGNAL STATIONS

Dome Type—Corridor



For mounting over doors in corridors. Equipped with ground glass dome and can be furnished with any number of lamps, up to five, under one dome. When furnished in connection with emergency calling station, will be fitted with two lamps, one clear and one red. Will fit two gang box with cover 2¾ inches deep.

Mfrs. No.	No. of Lamps	Price Each
16026	1	$6.06
16026	2	9.06
16026	3	11.56
16026	4	14.06

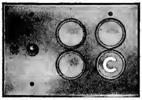
Pilot and Buzzer

The same as above but with buzzer and cut-off switch. For duty rooms and diet kitchens. Can be furnished with any number of lamps up to four under one dome. Will fit three-gang standard switch box with 2¾ inch deep cover.

Mfrs. No.	No. of Lamps	Price Each
16027	1	$19.10
16027	2	21.10
16027	3	23.60
16027	4	26.10

Note: All plates are supplied in brush brass or white enamel, as specified.

HOLTZER-CABOT HOSPITAL SIGNAL SYSTEMS



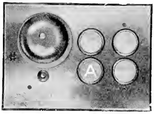
No. 162028

ANNUNCIATOR TYPE

For duty rooms and diet kitchens, where it is desired to register exact location of calls. Any number of lamps can be furnished.

Mfrs. No.	No. of Indications	Price Each	Mfrs. No.	No. of Indications	Price Each
162028	2	$26.70	162028	8	$56.55
162028	4	36.65	162023	10	66.50
162028	6	46.60	162028	12	76.45

With Emergency Bell



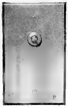
No. 162029

The same as No. 162028 with the addition of an emergency bell and larger front plate. The four indication size will fit any standard deep type outlet box with four-gang cover having clear opening 7 41/64 x 2 7/8 inches and 2 3/4 inches deep. Additional sets of two-lamp signals increase the size of station plate and outlet box by one gang.

Mfrs. No	No. of Indications	Price Each	Mfrs. No.	No. of Indications	Price Each
162029	2	$33.35	162029	8	$63.10
162029	4	43.20	162029	10	73.05
162029	6	53.15	162029	12	83.00

Outlet boxes are furnished with above stations in sizes containing ten lamps and over.

Note: All plates are supplied in brush brass or white enamel, as specified.



No. 162031

FLUSH BUZZER STATIONS

Equipped with buzzer mounted on back of plate with cut-out switch on front. Will fit any single gang switch box or cover having an opening 1 47/64 x 2 7/8 inches and 2 3/4 inches deep.

Mfrs. No	Description	Price Each
162031	Flush Buzzer Station	$12.10

With Emergency Bell

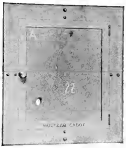
This station is the same as No. 162031 with the addition of an emergency bell. No cut-out switch for the bell is furnished. Will fit any single gang switch box or cover having a clear opening 1 47/64 x 2 7/8 inches and 2 3/4 inches deep.

No. 162033

Mfrs. No.	Description	Price Each
162023	With Emergency Bell	$16.60

HOLTZER-CABOT HOSPITAL SIGNAL SYSTEMS

LAMP ANNUNCIATOR



No. 162052

Illustration shows standard flush metal construction, but surface lamp annunciators in wood or metal case can be supplied. Markings on all annunciators consist of blocked out letters or figures on back of glass, not visible from front until lamps are lighted. Each lamp has special combination porcelain socket and reflector.

Surface Type—Wood Case

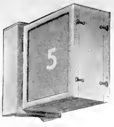
Mfrs. No	No. of Lamps	Price Each	Mfrs. No.	No. of Lamps	Price Each
162050	6	$54.00	162050	16	$90.00
162050	8	60.00	162050	20	102.00
162050	10	69.00	162050	25	120.00
162050	12	75.00	162050	30	135.00

Flush Type—Metal Case

Mfrs. No	No. of Lamps	Price Each	Mfrs. No.	No. of Lamps	Price Each
162052	6	$81.00	162052	16	$118.50
162052	8	87.00	162052	20	133.00
162052	10	97.00	162052	25	151.50
162052	12	103.00	162052	30	169.50

Outlet boxes are furnished with all flush lamp annunciators.

DOCTORS' CALLING STATIONS



No. 162069

Calling Lamp Annunciators

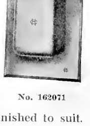
Double-faced, mounted on corner of wall. Can also be had for ceiling suspension or for flush wall mounting. Available space for each indication is 4 inches. A buzzer or bell with cut-off switch on trim is supplied.

Mfrs. No	Price Each
162069	$.......

CALLING SOUNDERS

Operates on tapper principle and used for sending doctors' code calls throughout the hospital. Of all metal construction. Will fit any single switch cover.

Mfrs. No.	Price Each
162071	$.......



No. 162071

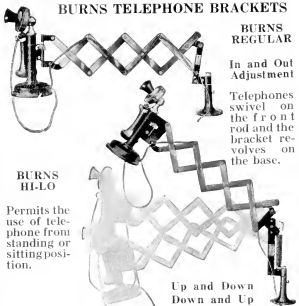
CALLING STATIONS

Can be furnished for silent or audible signalling.

Mfrs. No.		Price Each
162068	Regular	$.......
162070	Audible	....

Note: Calling stations can be finished to suit. State finish of equipment wanted.

BURNS TELEPHONE BRACKETS



Double telephone holders have another arm on rear rod of single bracket. Triple brackets in the same way, except a 2 inch longer rear rod is required.

Standard finish is black enamel; nickel plate finish with black enamel trim is special.

Mfrs. No.		Price Each	Mfrs. No.		Price Each
87	Regular	$4.50	H 87	Hi-Lo	$6.50
107	Regular	5.00	H127	Hi-Lo	7.00
127	Regular	5.50	H147	Hi-Lo	7.50
147	Regular	6.00			
167	Regular	6.50			

Add to list price for No. 86 mounting ..... .50

Arm only, regular Burns type, 26 inches, less clamp and mounting 3.40

Arm only, Hi-Lo Burns type, 28 inches, less clamp and mounting 5.40

Extra eyelets for cord, per dozen ..... .35

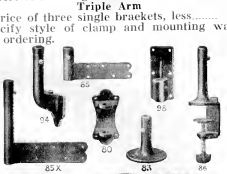
Double Arm

Add price of two single brackets, less ..... .85

Triple Arm

Add price of three single brackets, less 1.60

Specify style of clamp and mounting wanted when ordering.



Mountings

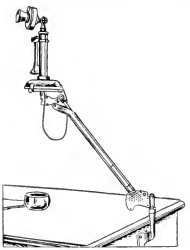
Mfrs. No.	Price Each
80	$0.75
83	.75
85, 85X	.75
86	1.25
94	.75
98	.75

Clamps

Mfrs. No.	Price Each
B	$0.35
G	.35
H	.35
107, 108 Dummy Receiver Forks	.10

EQUIPOISE TELEPHONE ARMS

FOR ROLL—FLAT TOP DESKS AND WALLS

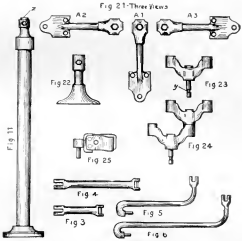


No. 205500

Hard Rubber Finish

Mfrs. No.	Arm Extension Inches	Drop In.	Price Each
205500	24	.....	$7.50
	For Roll Top Desks		
205503	24	10	9.50
205506	24	17	10.00

ATTACHMENT FOR EQUIPOISE ARM



Mfrs. No.	Description	Price Each
3	6 Inch Link Extension	$2.00
4	12 Inch Link Extension	2.50
5	10 Inch Drop Extension	2.00
7	17 Inch Drop Extension	2.50
11	Floor Stand	5.00
22	Special Desk Attachment	1.25
23	Double Yoke	1.25
24	Triple Yoke	2.00
25A	Stem Clamps	1.25

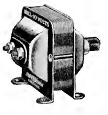
No extra charge for Nos. 22, 23, 25A when supplied in place of standard parts.

With the exception of No. 21 these accessory parts are not parts of the regular standard arm, but are special attachments designed to meet special and often difficult conditions.

JEFFERSON BELL RINGING TRANSFORMERS

110 volt, 60 cycle windings will operate on 110 to 120 volts, alternating current, 50 to 133 cycles; 110 volt, 25 cycle windings, on 100 to 120 volts, alternating current, 25 to 40 cycles. For 220 volt, 60 or 25 cycle transformers, add 15 per cent. to list prices below.

WIZARD



Has secondary of 10 volts, sufficient to operate door bells, buzzers and door openers used in the average residence or small apartment building.

Volts	Cycles	Watts	Price Each
110	60	25	**$1.50**
110	25	25	**2.00**

JUNIOR

For all classes of light signal work. Will also operate all standard types of door openers; has one secondary voltage, 25 watts capacity.

Size 2x2½x3¾ Inches

Volts	Cycles	Watts	Wt. Lbs.	Price Each
100	60	25	1½	**$2.00**
110	25	25	1½	**2.50**

TRI-VOLT

Has three secondary voltages—6, 12 and 18 volts, 25 watts capacity. Designed to take care of heavier work than the Junior type. Resembles the Junior in appearance but has three instead of two secondary binding posts.

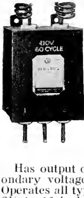
Volts	Cycles	Watts	Size, In.	Wt. Lbs.	Price Each
110	60	25	2x2½x3¾	1½	**$2.50**
110	25	25	2x2½x3¾	1½	**3.00**

TYPE B

Has three secondary voltages—6, 14 and 20 volts. Designed for heavier signal work and installations that require more power than is generated by either the Junior or Tri-Volt types. Resembles the Heavy Duty Type B, but is of smaller dimensions.

Volts	Cycles	Watts	Size, In.	Wt. Lbs.	Price Each
110	60	50	3x3¾x4	4	**$5.00**
110	25	50	3x3¾x4	4	**6.00**

TYPE HEAVY DUTY B



Has an output of 75 watts; generates three secondary voltages—6, 14 and 20 volts. Designed primarily to take care of large installations and operate a greater number of bells and other signals than the smaller outfits.

Size 3¾x4⅛x6 Inches

Volts	Cycles	Watts	Wt. Lbs.	Price Each
110	60	75	7½	**$7.00**
110	25	75	7½	**9.00**

TYPE C

Has output of 125 watts and generates four secondary voltages, namely, 6, 12, 18 and 24 volts. Operates all types of alternating current bells from 2½ to 16 inches. Will handle installations up to 20 bells. Resembles the Heavy Duty—Type B but has two secondary leads in sides and two in bottom instead of three in bottom.

Volts	Cycles	Watts	Size, In.	Wt. Lbs.	Price Each
110	60	125	3¾x4⅛x6	9	**$9.00**
110	25	125	3¾x4⅛x6	9	**11.00**

JEFFERSON BELL RINGING TRANSFORMERS

TYPE D

Has an output of 125 watts and generates three secondary voltages, namely, 15, 25, and 40 volts. Designed to take care of large bells, especially where extra long lines are used, and to operate old style direct current bells, which require a higher voltage than the transformer type bell.

Volts	Cycles	Watts	Size, In.	Wt. Lbs.	Price Each
110	60	125	3¾x4⅛x6	9	**$10.00**
110	25	125	3¾x4⅛x6	9	**12.50**

TYPES E AND F

Secondary voltages, 6, 12, 18 and 24 volts. These types can be furnished with any desired secondary voltages at a slight additional cost.

Type	Volts	Cycles	Watts	Size, In.	Wt Lbs. Each	Price Each
E	110	60	250	7⅜x5⅛x4¼	12	**$18.00**
E	110	25	250	9¼x6¼x5½	12	**22.00**
F	110	60	500	9¼x6¼x5½	27	**28.00**
F	110	25	500	7¼x6¼x5½	27	**35.00**

JEFFERSON TOY TRANSFORMERS

Connect to regular alternating lighting circuit, reducing current to a suitable voltage for operation of electrical toys.

LITTLE JEFF

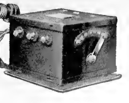
Regulating switch delivers five low voltages ranging from 4 to 12 volts, in 2 volt steps. Same as No. 2 in general appearance.

Capacity Watts	Size, In.	Wt. Lbs. Each	Price Each
50	3x4x2¾	2½	**$3.00**

MIDGET

Regulating switch delivers 16 voltages, ranging from 1½ to 24 volts in 1½ volt steps. Three permanent voltages, 6, 10 and 16 volts, also available. Same as No. 2 in general appearance.

Capacity Watts	Size, In.	Wt. Lbs. Each	Price Each
75	3¾x3¾x3	4	**$4.50**



NO. 2

Delivers 16 low voltages ranging from 1 to 24 volts in 1½ volt steps. There are also available 6 permanent voltages from 3 to 18 volts in 3 volt steps. Will operate Christmas tree outfits up to sixteen 14 volt lamps.

Capacity Watts	Size, In.	Wt. Lbs. Each	Price Each
100	4½x4½x3½	6	**$6.00**

NO. 3

The regulating switch delivers 20 low voltages, 1½ to 30 volts in 1½ volt steps. Eight permanent voltages can also be obtained, ranging from 3 to 24 volts in 3 volt steps. Operates largest types of toy trains and motors. Also Christmas tree outfits up to thirty-two 14 volt lamps.

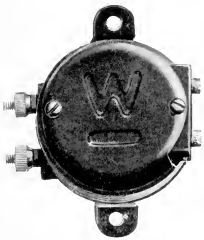
150	5¼x5½x4¼	9½	**8.00**

NO. 6

The regulating switch delivers 1½ to 30 volts in 1½ volt steps. Permanent voltages 3 to 24 volts in 3 volt steps. Will operate as many as fifty-six 14 volt Christmas tree lamps.

250	5¾x6x5¼	15	**15.00**

WESTINGHOUSE BELL RINGER



The bell ringer reduces the 110 volt alternating current of the lighting circuit to the voltage required for bells, buzzers, etc.

Designed especially for regular alternating current lighting circuits of 60 cycle frequency. They cannot be used on direct current circuits nor on alternating current circuits of other than 60 cycle frequency.

The best materials obtainable are embodied in these bell ringers. The windings are covered with pressed sheet steel end caps. The primary leads, which are connected to the 110 volt source of supply, issue through a porcelain bushing. The connections to the bell are made with binding posts, which are mounted on a porcelain support. The bell ringer has a rating of 10 volt-amperes. It delivers on open circuit 12 volts and it replaces several dry cells under ordinary conditions.

Mfrs. No.	Prim. Volts	Freq Cycles	Dimens., In. Hght	Wdth.	Dpth.	Shpg. Wt. Lb.	Price Each
284615	110	60	2¾	2⅛	2¼	1	**$1.50**

JEFFERSON SIGN LIGHTING TRANSFORMERS

Black enameled steel cases. Interior construction is immersed in special insulating compound which renders them impervious to moisture, and suitable for outdoor or indoor service. Double wound and insulated to withstand 2500 volts between primary, secondary and core. Winding ratio, 10 to 1 on 110 volt, and 20 to 1 on 220 volt circuit. Designed to be connected to ordinary alternating current lighting circuit for reducing to suitable voltage for 2½ and 5 watt 11 volt sign lamps.

Cap. Watts	Dimension Inches Length	Width	Height	Wt. Lbs.	Effi-ciency	Price Each
100	5	4½	3¾	9	91.5	**$11.00**
150	5⅜	4	4	10	92	**14.00**
250	5½	5¼	4½	15	93.1	**17.00**
500	7¼	6¼	5	23	94.5	**21.00**
750	7⅜	6½	5½	27	95	**24.00**
1000	7¾	6⅝	5¾	35	95.5	**30.00**
1500	8⅜	7½	6¼	47	96	**40.00**
2000	9¾	8	6¾	59	96.3	**45.00**
2500	10¼	8¾	7⅛	68	96.5	**60.00**

Transformers can be furnished for any special primary or secondary voltage, or any frequency at a slight additional cost.

KILLARK BELL RINGING TRANSFORMERS

PORCELAIN AND STEEL CASES

Killark bell transformers are made with a porcelain case in which the coils are imbedded in a waterproof compound. They are especially suitable for damp climates.

Killark transformers in a steel case are smaller and lighter, and will fit conveniently in a cutout box.

Porcelain Case

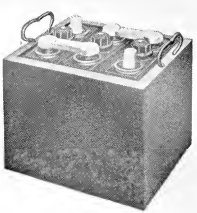
Mfrs. No.	Primary Voltage	Cycles	Secondary Voltage	Watts	Pkg. Wt.	Price Each
4166	100–120	60	8	13	40	**$1.50**
4163	100–120	60	6–12–18	13	41	**1.75**

Steel Case

6166	100–120	60	8	11	56	**1.50**
5163	100–120	60	6–12–18	11	57	**1.75**

One in a carton; 50 in a standard package.

STORAGE BATTERIES



We are prepared to furnish storage batteries for all purposes, including signal and radio work. Prices and descriptive matter will be furnished upon request, stating the application of the battery.

FIBRE AND BRASS CLEATS

HARD FIBRE CLEATS

Single Groove Cleat

Style	Lgth. In.	Width. In.	Groove In.	Price Per 1000
A	2¼	1/2	1/4x1/8	$50.00

Double Groove Cleat

Style	Lgth. In.	Width. In.	Groove In.	Price Per 1000
B	2¼	1/2	1/8x1/8	$50.00

Large Double Groove Cleat

E	1⅞	3/4	1/4x1/4	96.00

Corner Cleat

Style	Lgth. In.	Width. In.	Groove In.	Price Per 1000
C	1/2	1/2	1/4x1/8	$34.00

Three Wire Cleat

Style	Length In.	Width In.	Price Per 1000
D	1¾	1/2	$84.00

Groove 1/8 x 1/8 inches.

Single Groove Cleat

Style No.	Price Per 1000
1	$16.00

Double Groove Cleat

Style No.	Price Per 1000
2	$16.00

Double Groove Cleat

Style No.	Price Per 1000
2A	$16.00

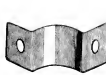
STRAIGHT BRASS CLEATS

Diam. In.	Price Per 100
1/2	$11.70
3/8	14.40
1/2	18.00
1	27.00

Heavy Brass Cleats

3/4	35.00
7/8	50.00

CORNER BRASS CLEATS



Diam. In.	Price Per 100
3/8	$13.50
1/2	14.46
1	22.50

Heavy Brass Cleats

7/8	50.00

PERFECTION INSULATED NAILS

Plain Top

Furnished in light oak, dark oak, dark green and black.

Mfrs. No.	Size of Shank Inches	Price Per 1000
18	1/2	$1.25
18	5/8	1.25
18	7/8	1.25

BLAKE INSULATED STAPLES

The fiber insulation of Blake Staples is of double thickness. The staples may be driven over two or more wires without danger of causing a short circuit or even a ground. Nos. 3 and 6 are for general use, Nos. 1 and 5 for use in hardwood.

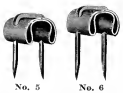
For Single Wire or Twisted Pair

No. 1 No. 3

Mfrs. No.	Wt. Lbs. Std. Case	Price Per 1000
1	42	$1.60
3	50	1.60

Carton, 1000. Std. Case, 25,000.

For Heavy Pair or Twisted 3-wire



No. 5 No. 6

Mfrs. No.	Wt. Lbs. Std. Case	Price Per 1000
5	54	$1.80
6	59	1.80

Carton, 1000. Std. Case, 25,000.

BLAKE COMPRESSED CLEATS

Compressed from impregnated wood, impervious to moisture, and should be used in all cases where insulated staples cannot be used such as on plastered ceilings, etc. Fastened with either nails or screws.

Mfrs. No.	Carton	Std. Case	Wt. Lbs. Std. Case	Price Per 1000
20	1000	10,000	60	$2.75

EUREKA FIBRE INSULATORS

The rubber bushing bulges when the nail is driven in.

LARGE ROUND HEAD

Type	Color	Lgth. In.	Price Per 1000
1	Gray	3/4	$3.00
1	Black	3/4	3.00
101	Gray	3/4	3.00
102	Black	3/4	3.00

No. 1 types have polished brass heads. No. 101 type has oxidized head and No. 102 type has black head.

SMALL FLAT HEAD

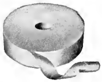
Type	Color	Lgth. In.	Price Per 1000
52	Gray	3/4	$1.90
52	Black	3/4	1.90
62	Gray	7/8	1.90
62	Black	7/8	1.90
72	Gray	1	1.90
72	Black	1	1.90

INSULATED NAILS

Type	Color	Lgth. In.	Price Per 1000
31	Gray	5/8	$1.70
31	Black	5/8	1.70
32	Gray	3/4	1.70
32	Black	3/4	1.70

JOHNS-MANVILLE ASBESTOS LISTING

WOVEN TAPE



A fireproof, flexible woven tape, suitable for wrapping all forms of electrical wires. Made in widths from ½-inch up, in thicknesses from .025 to $\frac{1}{16}$ inch, and can be furnished pure or commercially pure.

Width In.	No. 1091, $\frac{1}{16}$ In. Thick	No 1091, $\frac{1}{16}$ In. Thick With Wire Insertion	No 1082, 3/64 In Thick	No. 1073, 1/32 In. Thick	No. 1064, .025 In Thick
½ to ⅞	**$4.80**	**$4.40**	**$5.20**	**$6.40**	**$7.20**
1 to 1¼	**4.20**	**3.80**	**4.60**	**6.00**	**6.80**
1½ to 1¾	**3.80**	**3.40**	**4.20**	**5.60**	**6.40**
2 to 3	**3.20**	**2.80**	**3.60**	**5.20**	**6.00**

J-M FIBROID ASBESTOS PAPER TAPE

A thin fireproof paper .006 to .035 inch thick, made from specially selected asbestos fibre. Used for wrapping hoth magnet and armature wires. Put up in firm coils about 7 inches in diameter, 1 inch hole and cut with smooth edges. A roll 1 inch wide weighs about 1 pound and in the .01 inch thickness contains 300 feet.

Thickness Inch	Price Per Pound — ⅜ In. Wide	Price Per Pound — ½ In. or More Wide
.015 to .035	**$0.88**	**$0.68**
.01 to .014	**1.08**	**.88**
.006 to .01	**1.52**	**1.32**

For amounts over 25 pounds, special prices on application.

JOHNS-MANVILLE ASBESTOS YARNS

Asbestos yarns can be furnished for all purposes where a heat resisting or fireproof material is required. Packing flexible metallic tubing, braiding over wire, etc. Can be furnished commercially pure or absolutely pure, with or without wire.

Prices on application.

J-M ASBESTOS BRAIDED TUBING

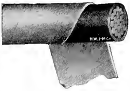
Made of commercially pure asbestos yarn braided into tubing ⅛ to ½ inch, or larger to order. Generally used where a flexible protection against heat, flame or chemicals is desired and where asbestos in tubular form is the most convenient and practical to apply. Waterproofing and insulating compounds may be applied. When ordering state diameter of wire to be covered.

Outside Diam., Inch	Type	Price Per Pound
⅛ to ¼	Commercially Pure	....
$\frac{5}{16}$ to 1½	Commercially Pure	....

Prices on application.

JOHNS-MANVILLE CABLE INSULATION

NIAGRITE



A flexible, fireproof felt tape, made of asbestos, in strips 15 feet long, or various widths and thicknesses in two forms, standard and reinforced. It is applied by means of Asbestoment.

Per 1000 Lineal Feet—Solution not Included

Size, In. Thk.	Size, In. Wth.	Standard Niagrited	Reinforced With Cloth	Size, In. Thk.	Size, In. Wth.	Standard Niagrite	Reinforced With Cloth
$\frac{3}{32}$	3	**$53.50**	**$146.50**	$\frac{3}{16}$	3	**$78.50**	**$169.00**
⅛	3	**59.50**	**152.00**	¼	3	**97.00**	**185.00**

Reinforced with asbestos listing; prices on application. 1½ and 2-inch widths in above thicknesses; prices an application.

ASBESTOMENT

A powder, having a super-refractory cement base, chemically neutral. Packed only in 100 pound bags. Its function after mixing with water is to so thoroughly impregnate the Niagrite that when applied to the cable spirally, the whole shall form a fireproof arc-retarding glove for the cable it protects.

Price Per 100 Pounds................................**$13.60**

JOHNS-MANVILLE FRICTION TAPES

Have exceptional insulating efficiency due to the heavy and even saturation. Contain the maximum yardage per pound. ¾-inch wide, put up in 4 and 8 ounce rolls, wrapped in tin-foil and packed in strong manila paper cartons.

Jomanco, gray in color. Recommended for permanent underground, subway, railway, signal, wireless, telegraph systems and general outdoor work. Will withstand high voltages.

No. 3—Largely used for taping motor leads, switchboards and inside wiring where a good insulation is required. Strong in friction, possesses high heat-retarding qualities and dielectric strength.

No. 5—A good grade for standard electrical work and other miscellaneous and domestic uses. Free from surface defects.

ARMATURE TAPE

Made from thin, closely woven sheeting of highest quality, frictioned on one side only. Suitable for winding armatures, field coils, etc.

Prices on application.

J-M SPLICING COMPOUNDS

Form a homogeneous mass without the aid of heat when applied, making a water-tight joint that lasts indefinitely. Made of para rubber scientifically compounded so that they do not dry out. Uniform in thickness and have exceptional strength. Are ¾-inch wide and put up in 4 and 8-ounce rolls wrapped in tin-foil and packed in strong manila paper cartons. Prices on application.

ALPHA

Highest grade. Joints that are impervious to moisture and strouger dielectrically and mechanically than the insulation of the wire itself, can be made with this compound. Will withstand a test of 300 volts per mil.

BROOKLYN

A good splicing compound, recommended for low voltage work.

WESTINGHOUSE TAPES

FRICTION TAPE

The two important uses of friction tape are to furnish mechanical protection and to furnish electrical protection to electric wires. On circuits of very low voltage, friction tape alone is used; on wires of higher voltage the friction tape serves not so much to insulate the wire as to protect the inner wrappings of treated cloth or splicing compound.

I. X. L. Friction Tape
For motor or generator work and interior wiring. Has extremely high yardage.

Westinghouse Friction Tape
Straight and Bias
For all service where highest quality is required.

Adhere Friction Tape
For general requirements.

SPLICING COMPOUND

Splicing compound is a tape made from pure rubber, so treated that it has permanent dielectric and mechanical strength and adhesiveness. It is used for high voltage insulation and when wound on a joint or splice should form a solid tube, allowing for the greatest possible dielectric strength at the joint and making a positive seal against water.

Westinghouse Special
For severe service where best rubber tape is required.

Pittsburgh
For general use where service conditions are not severe or where a low priced rubber tape is desired.

CABLE TAPE

Cable tape is recommended for the most severe service where perfect and permanent protection is required. This is a perfect insulator and is waterproof and acidproof.

Westinghouse Cable Tape
For high voltage line work, in mines and subways or where conditions of moisture are very severe.

Armature Tape
A high grade white tape, frictioned on one side only for insulation or armature coils.

WESTINGHOUSE TAPES

COMMODITY FRICTION TAPE

Commodity tape is an all purpose tape that can be used with equal facility for—bandaging a finger or making a temporary electrical connection. It is a necessity in every home and has found considerable popularity in electrical shops.

Prices on application.

P & B INSULATING TAPE

Withstands exposure to weather, water, acids, etc.; does not oxidize or dry out; dampness has no effect on its sticking qualities. Regularly supplied in paper cartons.

Prices on application.

OKONITE RUBBER TAPE

Okonite Tape is a rubber insulating tape for making splices or joints. Joints properly made with Okonite Tape are impervious to moisture and are as strong as the original insulation itself. Made in black only.

Carried in stock in widths of one-half and three-quarter in. only, other widths special.

Put up in cartons containing one-half pound of tape each—full weight.
Prices on application.

MANSON FRICTION TAPE

Manson Tape is a rubber filled cloth tape for protecting joints against mechanical injury. It is adhesive, does not unwrap and does not corrode copper wire. Made in black or white.

Black tape only carried in stock in widths of one-half and three-quarters inch, other widths special.

Put up in tin boxes containing one-half pound of tape each—full weight.
Prices on application.

JOHNS-MANVILLE ASBESTOS WOOD
TRANSITE

Recommended as a fireproof building material to be used instead of wood in all places where fire is a menace. Does not rot or rust and is not liable to warp, chip or buckle under service conditions. Though not impregnated with insulating compound it naturally possesses high resistance when dry.

Can be fastened with nails or screws and cut and worked with wood-working tools. It can also be painted, varnished or grained in true imitation of slate, marble or hardwood.

Supplied in standard sized sheets, 36x48 inches and 42x48 inches in all thicknesses and 42x96 inches in all thicknesses except ⅛ inch.

Thick., In.	Wt. Lbs Per Square Foot	Per Square Foot	Thick., In.	Wt. Lbs. Per Square Foot	Per Square Foot
⅛	1.7	**$0.15**	¾	7.6	**$0.90**
3/16	2.1	**.22½**	⅞	8.9	**1.05**
¼	2.8	**.30**	1	10.1	**1.20**
5/16	3.4	**.38**	1¼	13.0	**1.50**
⅜	4.0	**.45**	1½	15.7	**1.80**
½	5.3	**.60**	1¾	18.5	**2.10**
⅝	6.9	**.75**	2	21.0	**2.40**

EBONY

Ebony asbestos wood is recommended for use as an insulating base for switchboards, panel boards, bus bar barriers, switch bases and in other applications. It is in the form of composition sheets made up of asbestos fibre and binding cements and densely impregnated under heat and pressure into a compound of very high dielectric strength.

Shows extremely small surface leackage, being affected neither by oil nor atmospheric moisture, nor will it rot or rust even when exposed to the action of water, gas, oil, chemicals or ordinary acids.

Although light in weight, it has great physical strength, due to its fibrous structure.

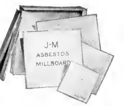
Standard size sheets 36x48 inches in all thicknesses and 42x48 and 42x96 inches in ¼ to 2-inch thicknesses only.

Thick., In.	Wt. Lbs. Per Square Foot	Per Square Foot	Thick., In.	Wt. Lbs. Per Square Foot	Per Square Foot
⅛	1.50	**$0.90**	¾	7.85	**$2.50**
3/16	2.08	**1.20**	⅞	9.00	**2.65**
¼	2.75	**1.30**	1	10.35	**2.80**
5/16	3.50	**1.45**	1¼	12.85	**3.10**
⅜	4.25	**1.60**	1½	15.00	**3.65**
½	5.43	**1.90**	1¾	17.80	**3.95**
⅝	6.88	**2.35**	2	20.65	**6.20**

Note.—Prices on cut pieces quoted on application. When ordering, specify size of sheet.

SLATE, ASBESTOS MILL BOARD AND PAPER

ASBESTOS MILL BOARD

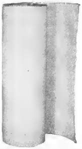


Made of asbestos fibre and a suitable binder. For protection against heat, acid fumes, fire, etc. Used for lining doors, floors, etc., in mills, factories and power plants. Made in 3 grades: hard, medium and soft. Standard sheets, 40x40 inches.

Thickness, Inches	1/32	3/64	1/16	5/64
Weight per 40 Inch Sheet, Lbs.	2.4	2.75	3.65	5
Thickness, Inches	3/32	⅛	5/32	3/16
Weight per Sheet, Lbs.	5.5	7	9	10
Thickness, Inches	¼	5/16	⅜	½
Weight per Sheet, Lbs.	14	17	20	25

Price Per Pound—All Thicknesses **$0.30**

ASBESTOS PAPER OR ROLL-BOARD

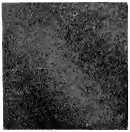


Made of long fibre asbestos. Its use is large and varied especially as a fire retardent. In rolls, 36 inches wide. 100 pounds per roll.

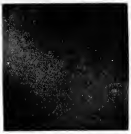
Thickness, Inches	.015	.018	.020
Wt. Per 100 Sq. Ft., Lbs.	6	8	10
Yards Per Roll	183	165	110
Thickness, Inches	.025	.028	1/32
Wt. Per 100 Sq. Ft., Lbs.	12	14	16
Yards Per Roll	92	77	69
Thickness, Inches	1/16	3/32	⅛
Wt. Per 100 Square Feet, Lbs.	38	53	68
Yards per Roll	29	21	16

Price Per Pound—All Thicknesses **$0.30**

ELECTRICAL SLATE
For Switchboards, Panelboards, Etc.



Sand Rubbed



Honed Finish

Superficial Contents in Sq. Ft.	1 In. or Less	Over 1 In. to 1¼ In. Inclusive	Over 1¼ In. to 1½ In. Inclusive	Over 1½ In. to 2 In. Inclusive
1 to 3	**$1.25**	**$1.50**	**$1.80**	**02.35**
3 to 8	**1.50**	**1.75**	**2.10**	**2.75**
8 to 12	**1.80**	**2.10**	**2.50**	**3.00**
12 to 15	**2.10**	**2.50**	**2.75**	**3.55**
15 to 20	**2.50**	**2.75**	**3.00**	**3.80**
20 to 25	**2.75**	**3.00**	**3.55**	**4.10**
25 to 30	**3.00**	**3.55**	**4.00**	**4.50**
30 to 35	**3.55**	**4.00**	**4.50**	**4.90**

Extra Charge for Beveling: ¼ inch, per foot, **$0.15**; ⅜ inch, per foot, **$0.25**; ½ inch, per foot, **$0.30**.

Size of bevel is determined by measuring across the face of same. Hone Finish, extra per square foot, **$0.25**.

WESTINGHOUSE INSULATING MATERIALS

COLD MOULDING MICA

No. 237 Flexible Mica Plate

The average dielectric strength of this plate is 600 volts per mil. This mica is used, without heating, for bending around sharp corners, such as are encountered in forming slot insulation, coil wrappers, and coil sheaths.

No. 228 Mica Tape

Made from uniformly thin splittings of mica, reinforced on both sides with Japanese paper, and cemented with a special bond. The average dielectric strengths for the .004 inch and .006 inch thicknesses are 2500 volts per mil and 4500 volts per mil, respectively.

No. 224 Japanese Paper and Mica

Is especially suitable for small coil wrappers, curved washers and spacing strips. Its approximate dielectric strength is 400 volts per mil.

No. 229 Treated Cement Paper and Mica

Made from thin, white mica, reinforced with .008 inch treated cement paper and covered with Japanese paper. Its approximate dielectric strength is 1300 volts per layer.

No. 232 Fish Paper and Mica

This wrapper is similar to No. 229, but is reinforced with fish paper instead of cement paper. Its average dielectric strength is approximately 6000 volts per sheet.

No. 240 Cambric and Mica

This is a flexible, white mica sheet, reinforced with .007 inch treated cambric and covered with Japanese paper. Its dielectric strength is approximately 5000 volts per sheet. Used where flexibility with maximum mechanical strength is required.

No. 241 Fullerboard and Mica

This wrapper consists of white mica reinforced with .007 inch fullerboard. Its mechanical strength is high and its dielectric strength is approximately 4000 volts per sheet. Used for transformer and field coil insulation. It cannot be used for wrapping small armature coils.

No. 308 Fullerboard and Mica

This is similar to No. 241 fullerboard and mica except that the mica sheet is thicker. Its dielectric strength is approximately 10,000 volts per sheet. This should be used for transformer and field coil insulation. It is unsuitable for wrapping small armature coils.

Flexible Mica Plate

Material No.	Standard Sheet Inches	Standard Thickness Inches	Approx. Wt. Lb. Per Sheet	Price Per Lb.
237	24x36	.005	.42	**$4.80**
237	24x36	.010	.85	**2.90**
237	24x36	.015	1.26	**2.80**
237	24x36	.020	1.70	**2.15**
237	24x36	1/32	2.72	**2.15**
		Mica Tape Rolls		
228	3/4 In. Wide	.004	.6	**3.70**
228	3/4 In. Wide	.006	.6	**4.45**
		Japanese Paper and Mica		
224	24x36	.004	.16	**4.10**
224	24x36	.006	.37	**3.85**
224	24x36	.008	.76	**3.45**
		Cement Paper and Mica		
229	40x36	.015	1.17	**1.60**
		Fish Paper and Mica		
232	40x36	.012	1.16	**2.80**
		Treated Cambric and Mica		
240	25x32	.013	1.05	**2.65**
240	Tape 3/4 In. Wide	.013	1.13	**3.00**
		Fullerboard and Mica		
241	36x40	.010	1.01	**1.50**
308	36x40	.015	1.40	**2.10**

WESTINGHOUSE INSULATING MATERIALS

TREATED FABRICS

Treated Fabric—Tan

Tan colored, strong, oil-proof, moisture-proof, and very durable. It has exceptionally long life under continued heat, and affords excellent resistance to mechanical abrasion. It is uniformly impregnated, and is free from pinholes or other undue roughness. This treated fabric has the proper amount of surface grit to enable it to be applied uniformly and without wrinkles. This treated fabric is furnished in four thicknesses: No. 111, .007; No. 112, .010; No. 113, .012, and No. 114, .015 inches. Can be furnished bias-cut if desired.

Treated Fabric—Black

A black treated fabric, .007 inches thick and carries a varnish which is especially designed to withstand high temperatures and high electrical stresses. The varnish film is slightly softer than that of No. 111 treated fabric and, therefore, will not resist abrasion quite so well. This treated fabric has a greasy surface which renders it more moisture-repellent and acts as a lubricant during the application of the material. This treated fabric is furnished in two thicknesses: No. 120, .007, and No. 121, .010 inches. It can be furnished bias-cut if desired.

No. 131 is a heavy duck, impregnated with a black flexible varnish, which makes it water-proof and very flexible. This material is a good insulator and can be applied without fear of its becoming hard and cracking. Because of an additional coat of hard-drying clear varnish, this treated fabric will withstand mechanical abrasion and still retain its flexibility. The finished thickness of this material is .020 inches. This material is obtainable as No. 132 treated fabric in .030 inch thickness.

Treated Fabric and Fishpaper

A specially constructed combination slot insulation. This material consists of tan treated fabric, firmly and uniformly cemented to fishpaper with a special insulating varnish, which will not become hard and brittle with age. It has high dielectric strength, is tough, will withstand mechanical abrasion and will not tear or break when assembled in slots. Cells formed from this material, should be made with the crease parallel with the grain of the fishpaper. This material is furnished in four thicknesses: No. 134, .014; No. 135, .015; No. 136, .022, and No. 138, .010 inches. It can also be furnished in 36 inch square sheets or in rolls containing 50, 75 or 100 square yards.

In ordering, specify the material wanted by number and name, also the size and number of rolls or sheets wanted. Standard rolls, 25 and 50 yards. Rolls of any length and sheets cut to any size, will be furnished when specified.

Mfrs. No.	Thickness	Width Inches	Average Breakdown Voltage	Std. Sheet	Approx. Wt. Lb. Per Sq. Yd.	Price Per Sq. Yd.
111	.007	36	7,000	.....	.47	**$0.57**
112	.010	36	10,000	.....	.60	**.64**
113	.012	36	12,000	.....	.74	**.74**
115	.015	36	15,000	.....	.92	**.81**
120	.007	36	7,000	.....	.47	**.59**
121	.010	36	10,000	.....	.60	**.72**
131	.020	36	.....	.....	1.00	**1.00**
132	.030	36	.....	.....	1.19	**1.20**
134	.013 to .015	36	.....	36x36	.89	**.86**
135	.016 to .019	36	.....	36x36	1.04	**1.05**
136	.022 to .025	36	.....	36x36	1.32	**1.20**
138	.010 to .012	36	.....	36x36	.70	**1.05**

WESTINGHOUSE INSULATING MATERIALS

TREATED FABRIC TAPES

Treated Fabric Tape—Tan

Tan treated fabric tape is made from the same high grade materials used in the manufacture of tan treated fabric. Furnished in two thicknesses: No. 118, .007, and No. 119, .010 inch.

Treated Fabric Tape—Black

Black treated fabric tape is cut from black treated, bias-sewed cambric, and is of the same finish and standard of quality as our regular black treated fabric. Furnished in two thicknesses: No. 122, .007, and No. 123, .010 inch, and in any width.

Standard packages, 20, 40 and 80 rolls.

Price Per 36 Yard Roll

	Approx. Wt. Oz. Per Roll		Tan Fabric Tapes		Black Fabric Tapes	
			No. 118	No. 119	No. 122	No. 123
Width Inches	.007 Thick	.010 Thick	.007 Bias	.010 Bias	.007 Bias	.010 Bias
½	3.5	4.3	**$0.35**	**$0.43**	**$0.38**	**$0.45**
⅝	4.4	5.4	**.45**	**.52**	**.48**	**.52**
¾	5.25	6.5	**.54**	**.61**	**.61**	**.65**
⅞	6.5	7.1	**.61**	**.71**	**.71**	**.75**
1	7	8.6	**.71**	**.81**	**.75**	**.85**
1¼	8.75	10.75	**.85**	**.98**	**.98**	**1.10**
1½	10.5	13	**1.05**	**1.20**	**1.20**	**1.30**
1¾	12.25	15	**1.25**	**1.45**	**1.35**	**1.45**
2	14	17.2	**1.40**	**1.60**	**1.60**	**1.70**

TREATED PAPERS

No. 1 is a high grade fishpaper, thoroughly impregnated with paraffine to exclude moisture and make it more convenient for use. Fishpaper is the strongest and toughest of the insulating papers and is especially adapted to service where resistance to mechanical injury must be combined with good insulating qualities. Furnished in four thicknesses: No. 1, .005; No. 2, .008; No. 3, .011, and No 4, .016 inches.

No. 7 is a good grade of express paper, thorough impregnated with paraffine which renders it moisture-proof. This paper is furnished .008 inches thick.

No. 8 is made by specially treating rope cement paper by a process similar to that applied to treated fabric. This paper has a firm, smooth surface, is remarkably strong and tough, and has a fair amount of flexibility. It is used for armature coil insulation, washers and spacing pieces. This treated paper is made in three thicknesses: No. 8, .008; No. 13, .013, and No. 18, .018 inches.

No. 48 is a high grade kraft paper treated with varnish in the same manner as fabric is treated. The finished thickness is .008 inches.

No. 55 is made from fullerboard by removing the moisture, and then coating with an oil-proof, moisture-repellent, baking varnish. The finished product has high dielectric strength and is very useful where there is need for mechanical rigidity. It is furnished in three thicknesses: No. 55, .035; No. 56, .060, and No. 57, .130 inches.

Mfrs. No.	Thk. In.	Wdth. In.	Average Breakdown Voltage	Std. Sheets	Std. Rolls	Approx. Wt. Lb. Per 50 Yd. Roll	Approx. Wt. Lb. Per Sheet	Price Per Lb.
1	.005	40	2,000	....	*	11	......	**$0.77**
2	.008	40	3,600	....	*	18	......	**.73**
3	.011	40	5,500	....	*	26	......	**.70**
4	.016	40	6,200	....	*	45	......	**.67**
7	.008	40	1,500	....	*	23	......	**.21**
8	.008	40	7,500	....	*	23	......	**.70**
13	.013	40	8,000	....	*	35	......	**.67**
18	.018	40	8,500	....	*	43	......	**.62**
48	.008	40	7,500	....	*	23	......	**.82**
55	.035	....	14,300	48x 60	..	....	7½	**.39**
56	.060	....	18,100	50x120	..	....	18	**.41**
57	.130	....	21,200	50x120	..	....	32½	**.36**

*25 and 50 yards

WESTINGHOUSE INSULATING MATERIALS

UNTREATED PAPERS

Standard Rolls—25, 50 and 100 Yards

Thick. In.	Approx. Breakdown Voltage†	Width of Rolls In.	Size of Sheets In.	Approx. Wt. Lbs. Per 100 Sq. Yds.	Approx. Wt. Lbs. Per Ream	Price Per Lb.
			Fishpaper			
.004	1000	50	....	22½	....	**$0.78**
.007	1700	40	....	40	....	**.68**
.010	2900	40	....	58	....	**.68**
.015	4500	40	....	90	....	**.68**
.023	7100	....	40x 72	....	1500	**.68**
.034	10000	....	40x 72	....	2400	**.68**
.056	20000	....	40x 72	....	4200	**.68**
			Express Paper			
.007	1500	50	24x 36	40	130	**.16**
			Cement Paper—High Finish			
.0055	900	40	....	19	....	**.31**
.010	1100	40	....	34	....	**.31**
			Machine Finish			
.015	1500	40	....	54	....	**.31**
			Fullerboard—Black or Tan			
.007	2600	40	36x 40	43	.32	**.27**
.010	3000	40	36x 40	62	.55	**.27**
.015	5000	40	36x 40	92	.82	**.27**
			Black or Gray			
.030	12000	....	36x 56	....	2.9	**.27**
			Gray			
.056	14000	....	40x 42	....	3.6	**.27**
.075	15000	....	40x 42	....	6.6	**.27**
.125	17000	....	55x120	775	....	**.27**
¼	30000	....	48x120	1550	....	**.27**
5/16	35000	....	48x120	1938	....	**.27**
⅜	45000	....	48x120	2325	....	**.27**
7/16	47000	....	48x120	2712	....	**.27**

†These voltages are approximate for breakdown and are not to be considered for continuous service.

WHITE FIBRE

Standard Sheets—Approx. 40x60 Inches

Thick. In.	Approx. Wt. Per Sheet in Lbs.	Price Per Lb.	Thick. In.	Approx. Wt. Per Sheet in Lbs.	Price Per Lb.
1/32	5	**$0.50**	⅞	140	**$0.64**
1/16	10	**.50**	1	160	**.71**
⅛	20	**.50**	1⅛	180	**.85**
3/16	30	**.51**	1¼	200	**1.00**
¼	40	**.51**	1⅜	220	**1.20**
5/16	50	**.51**	1½	240	**1.45**
⅜	60	**.51**	1⅝	260	**1.75**
½	80	**.53**	1¾	280	**2.25**
⅝	100	**.56**	1⅞	300	**3.25**
¾	120	**.59**	2	320	**4.25**

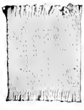
WHITE COTTON SLEEVING

Cotton sleeving is of good grade, closely braided, intended, for instance, to slip over the leads of armature coils, for additional insulation. It is designated by nominal inside diameter. By stretching or shortening the sleeving the diameter is changed, making each diameter adaptable to several sizes of wire.

Nominal I. S. Dia. In.	Will Fit Over B.&S. Gauge Wire No.	Approx. Wt. Lbs. Per Reel	Will Incrs. Diam. of Wire In.	Yards Per Lb.	Price Per Lb.
.045	17–18–19	5	.015	560	**$2.20**
.0641	14–15–16	5	.015	280	**2.20**
.081	12–13	10	.020	204	**2.20**
.162	6– 7– 8	10	.020	132	**2.20**
.258	1– 2	10	.035	91	**2.20**
⅜	00	5	.035	51	**2.20**
7/16	0000	5	.035	47	**2.20**
⅝	....	7½	.035	35	**2.20**
¾	....	7½	.035	28	**2.20**
1	....	8	.035	21	**2.20**

WESTINGHOUSE INSULATING MATERIALS

COTTON TAPE—Linen Finish

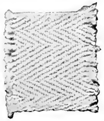


Thickness Inches	Width Inches	Color	Price Per Gross Yds.
.0045	½	White	**$1.55**
.0045	¾	White	**1.90**
.0045	¾	Red	**2.15**
.007	½	Black	**1.60**
.007	½	Red	**1.60**
.007	½	White	**1.35**
.007	¾	Red	**1.90**
.007	¾	White	**1.65**
.007	1	White	**2.05**
.007	1½	White	**3.05**

Approx. Yds. per Roll, 36.

WHITE SURGICAL TAPES

Thickness Inches	Width Inches	Apx Yds Per Roll	Price Per Gross Yds.
.020	¾	36	**$2.70**
.020	1	36	**3.75**
.020	1¼	36	**4.80**
.020	1½	36	**5.35**
.020	2	36	**6.90**
.020	2¼	36	**7.85**
.020	2½	36	**8.85**
.020	2¾	36	**9.80**



CORD AND THREAD

Tensile strength: Elm flax thread, 30 to 40 pounds; Barbour's flax twine, 6 to 10 pounds; 4-cord machine thread, 25 to 30 pounds; torpedo twine, 200 pounds.

Material	Thick. In.	Approx. Lb. Per Ball or Reel	Approx. Yards Per Lb.	Price Per Lb
Elm Flax Thread	1/16	1	290	**$1.50**
No. 3 Barbours Flax Twine	1/64	1	3600	**5.00**
4-Cord Machine Thread	1/32	1	900	**2.75**
Torpedo Twine	1/16	25	286	**1.30**
Torpedo Twine	3/32	25	146	**1.30**
Torpedo Twine	⅛	25	76	**1.30**
Wax End	1/32	1	900	**4.40**

ASBESTOS

Cloth—Sheets 36x36 Inches—Price Per Pound

Thick. In.	Approx. Wt. Sheet or Roll	Price	Thick. In.	Approx. Wt. Sheet or Roll	Price
.035	6¼	**$5.35**	....	......	....

Lumber, White—Sheets 42x96 Inches—Price Per Square Foot

⅛	......	**.24**	⅜	......	**$0.65**
3/16	......	**.33**	½	......	**.87**
¼	......	**.43**	¾	......	**1.30**
5/16	......	**.54**	1	......	**1.75**

Sheet—Rolls 36 Inches Wide—Price Per Pound

.007	110	**.29**	.015	110	**.16**
.010	110	**.29**	......	......	....

Sheets 42x48 Inches—Price Per Pound

1/16	3½	**.08½**	⅜	18	**.08½**
⅛	6	**.08½**	½	24	**.08½**
3/16	10	**.08½**	⅝	34	**.08½**
¼	13½	**.08½**	13/16	46	**.08½**

Tape—21 Yard Rolls

Thick. In.	Wdth. Roll	Wt.Oz. Per Roll	Price Per Lb.	Thick. In.	Wdth. Roll	Wt.Oz. Per Roll	Price Per Lb
.015	½	4	**$4.80**	.025	1	26	**$4.35**
.015	¾	5⅓	**4.80**	.025	1⅛	32	**4.35**
.015	1	10	**4.80**	.025	1¼	32	**4.35**
.015	1¼	12	**4.80**	.025	1½	34	**4.35**
.025	¾	20	**4.35**	......	......	....	......

Cord—5 Pound Rolls		Ft. Per Lb.		Sleeving—5 Pound Rolls		Ft. Per Lb	
1/16	......	600	**6.50**	5/32	......	175	**6.50**

WESTINGHOUSE INSULATING MATERIALS

BAKING VARNISHES

Varnish No.	Color	Specific Gravity	Thinner	Price Per Gal. 1 Gal. Cont.	5 Gal. Cont.	10 Gal. Cont.	1 Bbl. Cont.
311 (Amber Insulator)	Clear	.850	†	**$2.15**	**$2.05**	**$1.85**	**$1.55**
315	Clear	.835	†	**2.90**	**2.80**	**2.70**	**2.40**
319 (Asphaltum Enamel)	Black	.855	†	**2.05**	**1.95**	**1.65**	**1.35**
327 (Plastic Insulator)	Black	.850	†	**1.60**	**1.50**	**1.35**	**.95**
335	Black	.865	†	**2.40**	**2.35**	**2.30**	**1.85**
337	Black	.850	†	**1.70**	**1.60**	**1.55**	**1.20**
343	Black	.830	..	**1.95**	**1.85**	**1.75**	**1.35**

†54°-60° Naphtha.

AIR DRYING VARNISHES

Varnish No.	Color	Specific Gravity	Thinner	Price Per Gal. 1 Gal. Cont.	5 Gal. Cont.	10 Gal. Cont.	1 Bbl. Cont.
410	Clear	.850	†	**$2.45**	**$2.35**	**$2.25**	**$1.90**
416 (Air Drying Insulator)	Black	.850	†	**1.90**	**1.75**	**1.50**	**1.15**
418 (Insulation Varnish)	Black	.900	‡	**3.40**	**3.30**	**3.15**	**2.70**
422 (Finishing Varnish)	Black	.916	*	**3.60**	**3.45**	**3.30**	**2.95**
428 (No. 3 Shellac)	Orange	.880	*	**4.65**	**4.35**	**4.25**	**3.80**
434 (No. 14 Shellac)	Clear	.845	*	**2.00**	**1.90**	**1.85**	**1.60**
436 (No. 1 Shellac)	Clear	.....	..	**2.45**	**2.35**	**2.15**	**1.75**

†54°-56° Naphtha. ‡Gasolene or Benzol. *No. 436 Varnish or Denatured Alcohol.

The information given with regard to thinners and specific gravities is based upon the manufacturer's experience with the products. The specific gravities given are the recommended densities for applying. The product furnished may not have this density.

INSULATING COMPOUNDS

Comp'd No.	Color	Dropping Point	Container		Price
513 (No. 5 or Commutator Cement)	White	....	½ Lb. Can	*	**$0.90**
			3 Lb. Can	*	**.49**
			10 Lb. Can	*	**.30**
			25 Lb. Can	*	**.25**
517	....	....	....	†	**4.65**
521 (A. R. C. Cement)	White	....	1 Pt. Can	‡	**.36**
			1 Qt. Can	‡	**.65**
			1 Gal. Can	‡	**2.05**
525 (No. 18 Cement)	Black	140° C.	1 Lb. Cakes	*	**.15**
			10 Lb. Cakes	*	**.15**
529	Black	140° C.	1 Lb. Cakes	*	**.15**
			10 Lb. Cakes	*	**.15**
533	Red	110° C.	....	*	**.15**
535	Black	75° C.	....	*	**.30**
539	Amber	110°-120° C.	....	*	**.45**
541	....	....	....	†	**1.50**
543	Black	90° C.	....	*	**.10**
547	Black	150° C.	....	*	**.10**

*Per pound. †Per gallon. ‡Per can.

WESTINGHOUSE INSULATING MATERIALS

AIR DRYING FINISHING MATERIALS

Priming Paint

Material No.	Color	Thinner Cum.	Price Per Gallon 1 Gal. Cont.	5 Gal. Cont.	10 Gal. Cont.	1 Bbl. Cont.
614	Black	*	$3.70	$3.50	$3.50	$3.15
618	Light Brown	*	5.30	5.20	5.10	4.65
		Paint				
622	Light Gray	*	5.30	5.20	5.10	4.65
626	Dark Gray	*	5.30	5.20	5.10	4.65
		Sealer				
630	Black	†	4.80	4.70	4.60	4.25
		Enamel				
634	{ Semi-Glossy Black }	†	5.30	5.20	5.10	4.65
638	Light Gray	*	5.60	5.50	5.40	5.05
642	{ Glossy Black }	†	3.80	3.70	3.60	3.25
646	Black (Flat Enamel)	‡	4.30	4.25	3.80	3.45
		Paint				
650	{ Glossy Black } (Protective Paint)	¶	1.80	1.70	1.45	1.00
		Japan				
654	Black	¶	1.30	1.25	1.15	.80
		Lacquer				
658	Black (Switchboard Lacquer)	§	6.50	6.45	6.30	....
		Paint Thinner				
662	.....	..	1.75	1.65	1.55	1.15
		Thinner				
664	..... (Lacquer Thinner)	..	5.60	5.50	.....	.....

*No. 662. †Use as received. ‡Naphtha or turpentine. ¶Naphtha. §No. 664.

BAKING FINISHING MATERIALS—Black

Material No.	Specific Gravity	Price Per Gallon 1 Gal. Cont.	5 Gal. Cont.	10 Gal. Cont.	1 Bbl. Cont.
718 Japan	.855	$1.50	$1.40	$1.30	$1.00
722 Japan	.900	4.70	4.60	4.50	4.15
732 Enamel	1.06	4.10	4.00	3.90	3.50
736 Enamel	8.35	3.35	3.30	3.20	2.80

Thinner, naphtha.

INSULATING GLUE

A non-hygroscopic, neutral, liquid insulating glue, possessing excellent adhesive qualities. Applied cold it is recommended for fastening tape ends, closing cells and in general for gluing insulating materials. It can also be baked, and is recommended for building up fuller board strips.

Mfrs. No.	Price Per Can ½ Pt. Can	1 Qt. Can	1 Gal. Can
880	**$0.26**	**$0.55**	**$1.70**

SOLDERING FLUXES

Material No.	Price Per Can 2 Oz. Can	4 Oz. Can	8 Oz. Can	1 Lb. Can	8 Lb. Can
914 (Paste)	$0.16	$0.18	$0.29	$0.45	$2.50
920 Flux	.25	.40	.70	1.25	9.00
	1 Pt. Can		1 Qt. Can		1 Gal. Can
908 Flux	$0.26		$0.39		$1.30

HL LUBRICATING OIL

Developed for the lubrication of pneumatically operated switch cylinders. This oil is sufficiently liquid to be used in an ordinary oil can and is used without dismantling switch group. Inject through the hole in the top of switch cylinder casting, ⅛ ounce every 10,000 miles, under average operating conditions.

HL Oil in 1 Gallon Can, Weight 7 Pounds.

Price Per Pound $0.18

WESTINGHOUSE INSULATING OILS

WEMCO A TRANSFORMER OIL

Wemco A oil is a special grade of oil for use in oil insulated and oil cooled apparatus, including transformer, Westinghouse indoor oil circuit breakers, electric lightning arresters, feeder regulators and rectifiers.

WEMCO B SWITCH OIL

Wemco B oil was the standard oil for use in Westinghouse indoor oil circuit breakers for many years. Later research has demonstrated that wherever Wemco B oil has been used in Westinghouse oil circuit breakers, Wemco A oil can be used instead. Thus the number of kinds of oil that a customer must carry in stock can be reduced. However, Wemco B oil is still available for customers who may want to maintain their present stock of it.

WEMCO C SWITCH OIL

Wemco C oil is similar to Wemco A oil but has the remarkably low congealing point of minus 40 degrees Centigrade (minus 40 degrees Fahrenheit). Wemco C oil is recommended for use the year round in outdoor or unheated indoor installations of oil circuit breakers, switches and auto starters when temperature below 0 degrees Centigrade may be encountered.

Note.—Complete information regarding the above oils, including prices, will be furnished on request.

OIL TESTING SERVICE

In order to make sure that the dielectric strength is up to its proper value, the insulating oil in any piece of apparatus should be tested at regular intervals. The N. E. L. A. recommends that oil samples from all power station and substation apparatus be tested at least once every three months, and that samples from distribution transformers be tested at least once a year.

Many users of transformers and large oil circuit breakers do not have the necessary equipment for testing insulating oil. In order that these users may be able to make the periodic tests recommended the Westinghouse Electric & Manufacturing Company has established an oil testing service.

The oil sample container shown in the illustration has been developed as a part of the Westinghouse oil testing service. This service furnishes a means by which customers can mail samples of insulating oil to the East Pittsburgh works for test.

After drawing the oil the customer should reseal and repack the bottle and mail it to the Engineering Laboratory at East Pittsburgh. To simplify these details, an instruction and order sheet and a printed return label have been provided, and are inserted in the carton container. The instructions cover the taking of the sample and its proper preparation for mailing.

As soon as the test has been made, a report of the condition of the oil is sent by mail directly to the person in the customer's organization who has been designated on the order to receive it. In case the oil is not in first class condition, suggestions as to treatment are given.

	Price
Carton of Six (6) Containers, Per Carton	$6.00
Charge for Testing Service, Per Sample	5.00

WESTINGHOUSE MICARTA PRODUCTS

NO. 213 MICARTA PLATE—Brown

This material is recommended for all applications where high mechanical strength is required, or for general application on account of its electrical and mechanical qualities. No. 213 is brown in color, and has the following characteristics: Will stand for short periods temperatures as high as 140 degrees Centigrade. Can be cut to any required dimensions. Can be sawed to size, also drilled and tapped across the grain. In thicknesses to ⅛ inch, when heated, can be punched with simple dies.

Thickness Inches	Size of Sheet, in.	Wt. Per Lb.	Price	Thickness Inches	Size of Sheet, in.	Wt. Per Lb.	Price
1/16	36x36	*	$2.50	1/8	36x36	*	$2.05
3/32	36x36	*	2.25	3/16 to 2	36x36	*	2.00
1/8	36x36	*	2.10	1/8 to 2	36x36	*	2.00

NO. 423 MICARTA PLATE—Black

(Formerly No. 323)

No. 423 is an insulating plate of the same characteristics as No. 213, but black in color. It is a good substitute for hard rubber and similar materials for miscellaneous insulating purposes.

Thickness Inches	Size of Sheet, in.	Wt. Per Lb.	Price	Thickness Inches	Size of Sheet, in.	Wt. Per Lb.	Price
1/16	36x36	*	$2.50	1/8	36x36	*	$2.05
3/32	36x36	*	2.25	3/16 to 2	36x36	*	2.00
1/8	36x36	*	2.10	1/8 to 2	36x36	*	2.00

NO. 219 MICARTA PLATE—Tan

Formerly No. 21-X

An extremely dense and non-hygroscopic material to be used where minimum absorption is required. No. 219 is more nearly homogeneous than No. 213, but is not so strong mechanically. Will stand for short periods temperatures as high as 140 degrees Centigrade. Sizes, ⅛ to 2 inches thick, standard sheets 36x36 inches, can be cut to any required dimensions at a slight additional charge. Can be sawed to size, drilled and tapped across the grain. With slight extra care, it can be drilled and tapped with the grain.

Thickness Inches	Size of Sheet, in.	Wt. Lb.	Price Per Lb
⅛ to 2	36x36	*	$2.00

NO. 429 MICARTA PLATE—Black

(Formerly No. 32-X)

No. 429 is an insulating plate of the same characteristics as No. 219, but black in color. It takes an excellent polish either with or across the grain. This grade should be used when a satin finish is to be applied or when the edges are to be beveled.

Thickness Inches	Size of Sheet, in.	Wt. Lb.	Price Per Lb
⅛ to 2	36x36	*	$2.00

*Estimate weights of all grades at 20 cubic inches per pound, one ounce per 1/16 inch of thickness.

Sheets of any thickness between the maximum and minimum thicknesses specified above can be supplied. If plates are required cut to size, additional charge will be made.

WESTINGHOUSE MICARTA PRODUCTS

NO. 222 MICARTA PLATE—Tan

This paper-base micarta is the most nearly homogeneous of all the grades of micarta. Hence it can be machined nearly as easily across as with the grain. It absorbs less moisture than other grades of micarta. It has a higher dielectric strength than any other grade, but is not so strong mechanically as No. 213 micarta. The ease with which it can be punched is useful; in the thinner sizes it can be punched while cold, but it is recommended that it be heated, before punching, to about 120 degrees centigrade (248°F.). Standard sheets are 36x36 inches, from 1/32 to 2 inches thick.

Recommended particularly for making punchings, or where much drilling, tapping or machining is to be done.

Thickness Inches	Size of Sheet, in.	Wt. Per Lb.	Price	Thickness Inches	Size of Sheet, in.	Wt. Per Lb.	Price
1/32	36x36	*	$2.25	1/16	36x36	*	$2.00
1/16	36x36	*	2.10	1/8 to 2	36x36	*	2.00
1/8	36x36	*	2.05	.....	.....	..	.....

NO. 432 MICARTA PLATE—Black

No. 432 micarta is the same as No. 222 micarta, except that it is black. This material should be used wherever a black plate with other qualities the same as No. 222 micarta is required.

Thickness Inches	Size of Sheet, in.	Wt. Per Lb.	Price	Thickness Inches	Size of Sheet, in.	Wt. Per Lb.	Price
1/32	36x36	*	$2.25	1/16	36x36	*	$2.00
1/16	36x36	*	2.10	1/8 to 2	36x36	*	2.00
1/8	36x36	*	2.05	.....	.....	..	.....

NO. 21-D MICARTA PLATE

Made with a fine, specially woven, duck base. It has high mechanical and dielectric strength, and machines and punches very easily. It can stand for a short time temperatures up to 140 degrees centigrade (284°F.).

Standard sheets, approximately 35x35 inches, from 1/16 to 3 inches thick. Recommended for general insulating purposes, especially where great mechanical strength is necessary. Is suitable also for parts which require difficult machining.

Thickness Inches	Size of Sheet, in.	Wt. Per Lb.	Price	Thickness Inches	Size of Sheet, in.	Wt. Per Lb.	Price
1/16	35x35	*	$2.05	1/8 to 2	35x35	*	$2.00
1/8	35x35	*	2.00	2 to 3	35x35	*	2.00

NO. 21-M MICARTA PLATE

The base of this material is a special duck, somewhat coarser than that used in the manufacture of No. 21-D micarta. No. 21-M micarta is very strong and tough, and resists the action of both oil and water. It can be machined to dimension readily and accurately.

Developed primarily for the manufacture of gears and pinions. Its structural and wearing qualities make it preferable to rawhide and other non-metallic materials which, hitherto, have been used in making noiseless gears and pinions.

Gears and pinions made of No. 21-M micarta may safely be used within the same strength limits as cast iron gears and pinions.

Thickness Inches	Size of Sheet, in.	Wt. Per Lb.	Price	Thickness Inches	Size of Sheet, in.	Wt. Per Lb.	Price
1/8 to 2	36x36	*	$2.00	2 to 3	36x36	*	$2.00

*Estimate weights of all grades at 20 cubic inches per pound, one ounce per 1/16 inch of thickness.

Sheets of any thickness between the maximum and minimum thicknesses specified above can be supplied. If plates are required cut to size, additional charge will be made.

WESTINGHOUSE MICARTA PRODUCTS

NO. 238 MICARTA PLATE

This material is similar to No. 21-M micarta, except that it is made with a very fine fabric as base, much finer than that used with either No. 21-D or No. 21-M micarta. Standard sheets, 36x36 inches, from 1/32 to 2 inches thick.

No. 238 micarta was first developed as a material for gears and pinions of small pitch and face width. Because of its fine grain and densely homogeneous structure, gear teeth of small pitch can be accurately cut in it. This makes it well suited to the manufacture of small objects and small gears such as those used on phonographs, speedometers, and fractional horsepower motors.

Micarta gears are being used successfully on such small machines as speedometers, oscillographs, coffee grinders and meat choppers, and with equal success on such heavy duty work as milling machines, high pressure pumps and reversing planers; everywhere in fact, where durable, resilient and quiet running gears can be used.

Thickness Inches	Size of Sheet, In.	Wt. Lb.	Price Per Lb.	Thickness Inches	Size of Sheet, In.	Wt. Lb.	Price Per Lb
1/32	36x36	*	**$2.25**	3/32	36x36	*	**$2.00**
3/64	36x36	*	**2.10**	1/8 to 2	36x36	*	**2.00**
1/16	36x36	*	**2.05**	2 to 3	36x36	*	**2.00**

*Estimate weights of all gears at 20 cubic inches per pound, one ounce per 1/4 inch of thickness.

Sheets of any thickness between the maximum and minimum thicknesses specified above can be supplied. If plates are required cut to size, additional charge will be made.

MICARTA RODS

Micarta rods are turned from both tan and black micarta plate and so have the same general characteristics as the plate. They are very useful as spacers, mandrels and cores as they are not affected by moisture or atmospheric changes. Being made from plate stock, these rods cannot be used in such applications as rollers and casters, where pressure is applied in the direction of the grain.

Diam. In.	Appx. Wt. Per 10 Ft. Lb.	Oz.	Price Per Ft.	Diam. In.	Appx. Wt. Per 10 Ft. Lb.	Oz.	Price Per Ft.
1/4	0	4½	**$0.34**	1	4	10	**$2.16**
5/16	0	7¼	**.44**	1⅛	5	14	**2.62**
3/8	0	10½	**.52**	1¼	7	4	**3.08**
7/16	0	12	**.64**	1⅜	8	13	**3.69**
1/2	1	2½	**.77**	1½	10	7	**4.33**
9/16	1	6	**.91**	1⅝	12	4	**4.96**
5/8	1	13	**1.08**	1¾	14	5	**6.19**
11/16	2	1	**1.22**	1⅞	16	6	**7.32**
3/4	2	10	**1.41**	2	18	10	**8.63**
7/8	3	9	**1.77**	......	....	....	......

Standard length of rod approximately 36 inches.

Information on rods of diameters greater than 2 inches will be furnished on request. Rods are made with variations of not more than 1/64 inch greater than the specified diameter; they are never made with a smaller diameter than that specified.

MICARTA SPECIAL FORMED SHAPES

Micarta in special formed shapes such as channels, angles, collars and spool ends, to meet the requirements of various applications, can be furnished. This material will have substantially the same characteristics as the standard micarta plate. Prices will be quoted on application.

WESTINGHOUSE MICARTA PRODUCTS

MICARTA TUBING

No. 213 Micarta Tubing—Tan

This is the standard micarta tubing. It has the general characteristics of No. 213 micarta plate. It will stand for short periods a temperature as high as 140 degrees centigrade. This tubing can be machined but not readily threaded.

No. 213 Navy Micarta Tubing—Tan

This tubing has the same general properties as the standard grade, except that it can be threaded easily. Can be used wherever threaded tubing is required.

No. 323 Micarta Tubing—Black

This tubing is the same as No. 213, except that it is black. It is made in two finishes: natural and glossy. The natural finished tubing is not so uniformly black as the glossy.

No. 403 Micarta Tubing—Tan

This grade differs from No. 213 tubing in that it is acted upon more strongly by solvents. Chemicals act upon it in much the same way they do upon clear varnish films. No. 403 micarta tubing will withstand a temperature of 100 degrees centigrade (212°F.) for a short time; excessive heat will distort it and cause it to collapse. If bound mechanically so that distortion can not occur, it may be subjected to higher temperatures. This grade of tubing can be used for insulation wherever high temperatures or severe moisture conditions do not obtain. For applications where flashover may occur this tubing is preferable to No. 213.

No. 53 Micarta Tubing—Tan

No. 53 micarta tubing is similar to No. 403 tubing, but is affected more by heat and such solvents as alcohol and water. It withstands successfully temperatures up to 60 degrees centigrade (140°F.) but, at higher temperatures, softens and collapses. Not being affected by oil, this grade of tube is especially useful in transformer applications.

MICARTA PUMP WASHERS

No. 121 Micarta Pump Washers

Made from cotton fibre and a binder, both of which are heat resisting. In this combined form the material is non-hygroscopic and is not affected by oil, weak solutions of acids or alkalis or by similar solvents. All of these properties make it especially suitable for pump valves.

This material is not affected by high pressures and may be used under temperature up to approximately 110 degrees centigrade.

Especially valuable for use in mine pumps where they are subject to the corrosive action of the chemicals in mine water. Also recommended for oil and gasoline pumps as well as regular water pumps where hard valves can be used.

Mfrs. No.	Diam. Outside In.	Diam. Inside In.	Thk. In.	Price Each	Mfrs. No.	Diam. Outside In.	Diam. Inside In.	Thk. In.	Price Each
290816	2	13/32	5/16	**$0.21**	**290821**	4	5/8	5/8	**$1.00**
290817	2¼	3/16	1/4	**.17**	**290822**	4½	5/8	5/8	**1.28**
290818	2½	7/16	1/2	**.35**	**290823**	5	3/4	5/8	**1.58**
290819	3	1/2	1/2	**.45**	**290824**	6	3/4	5/8	**2.27**
290820	3½	5/8	1/2	**.62**	....	....	....	....	......

No. 21-D Micarta Pump Washers

Washers cut from No. 21-D plate can also be furnished and will have the same general characteristics as No. 21-D plate.

WESTINGHOUSE INSULATING MATERIALS

SHEET MICA

No. 210 Amber Mica Plate

Because it is the softest mica known, Canadian mica is well suited for commutators that are not undercut. Extremely soft, it prevents sparking by wearing down evenly with the copper bars of the commutator. It is suitable for other work where it will be used only in the flat form.

Material *No.	Std. Sheet In.	Std. Thick. In.	Approx. Wt. Lb., Per Sheet	Price Per Lb.
210	24x36	.018	1.50	**$5.90**
210	24x36	.020	1.60	**5.90**
210	24x36	.025	2.00	**4.50**
210	24x36	.030	2.40	**4.50**
210	24x36	.032	2.60	**4.50**
210	24x36	.035	2.80	**4.50**
210	24x36	.040	3.20	**4.50**
210	24x36	.045	3.60	**4.50**
210	24x36	3/64	3.80	**4.50**
210	24x36	.050	4.00	**4.50**
210	24x36	.060	4.80	**4.50**
210	24x36	1/16	4.10	**4.50**

No. 207 White Mica Plate

This mica plate is similar to No. 210 amber mica except that it is made from white Indian mica.

This mica is used for insulating segments on undercut commutators. As it is a hard mica, it will not wear down with the copper bars, and thus will cause the commutator to spark.

Material *No.	Std. Sheet In.	Std. Thick. In.	Approx. Wt. Lb., Per Sheet	Price Per Lb.
207	24x36	.018	1.50	**$3.10**
207	24x36	.020	1.40	**3.10**
207	24x36	.025	1.75	**2.80**
207	24x36	.030	2.10	**2.80**
207	24x36	1/32	2.18	**2.80**
207	24x36	.035	2.45	**2.80**
207	24x36	.040	2.80	**2.80**
207	24x36	.045	3.15	**2.80**
207	24x36	3/64	3.22	**2.80**
207	24x36	.050	3.50	**2.80**
207	24x36	.060	4.20	**2.80**
207	24x36	1/16	4.36	**2.80**
207	24x36	5/64	6.54	**2.80**
207	24x36	1/8	8.72	**2.80**

*For commutator work, only plate milled to exact thickness is furnished.

MICA TUBES

Made from thin splittings of white mica, cemented with a tough, adhesive bond and reinforced with Japanese paper. They are very compact and uniform in thickness of the wall.

These tubes are for use as insulating sleeving on grid resistor tie-rods and similar applications.

Inside Diam. In.	Max. Lgth. In.	—Price Per Ft.— 3/4 Inch Wall	7/8 Inch Wall	Inside Diam. In.	Max. Lgth In.	—Price Per Ft.— 7/8 Inch Wall	1/8 Inch Wall
1/4	12	**$0.11**	**$0.19**	7/8	12	**$0.19**	**$0.32**
5/16	12	**.11**	**.19**	1	32	**.19**	**.32**
3/8	12	**.13**	**.24**	1 1/8	32	**.21**	**.35**
7/16	24	**.11**	**.24**	1 1/4	12	**.24**	**.38**
1/2	24	**.11**	**.24**	1 3/8	24	**.27**	**.41**
9/16	24	**.11**	**.24**	1 1/2	32	**.30**	**.44**
5/8	24	**.17**	**.32**	1 5/8	32	**.33**	**.47**
11/16	12	**.17**	**.32**	1 3/4	32	**.36**	**.50**
3/4	32	**.17**	**.32**	1 7/8	32	**.39**	**.53**
13/16	32	**.17**	**.32**	1 1/4	32	**.42**	**.56**

The prices above are for standard wall thicknesses. Prices of tubes of thicknesses other than those above will be quoted on request.

WESTINGHOUSE INSULATING MATERIALS

HOT MOULDING MICA

No. 250 Heater Mica Plate

This smooth-surfaced plate is made from selected splittings so sealed and lapped that there can be no flaring or shifting of the splittings while applying the mica to the apparatus. Clean cut holes, with saw-tooth edges, can be punched for retaining the heating element. With this plate a special bond is used, which volatilizes above 200° Centigrade but does not affect the heating element nor reduce the insulating property of the mica. It is necessary to support this plate after the bond has been removed by heating. The dielectric strength of this plate is approximately 1200 volts per mil.

This mica is suitable, either in flat or moulded form, for insulating heating appliances, the operating temperatures of which do not exceed 800° Centigrade.

Material No.	Std. Sheet In.	Std. Thick. In.	Approx. Wt. Lb., Per Sheet	Price Per Lb.
250	24x36	.010	.75	**$3.00**
250	24x36	.015	1.12	**3.00**

No. 209 Heater Mica Plate

This plate is similar to No. 250 mica plate, but is made from a different grade of mica.

This mica, in either flat or moulded form, is used for insulating heating appliances in which the operating temperatures do not rise beyond 400° Centigrade.

Material No.	Std. Sheet In.	Std. Thick. In.	Approx. Wt. Lb., Per Sheet	Price Per Lb.
209	22x27 1/2	.010	.70	**$4.35**
209	22x27 1/2	.012	.84	**5.00**
209	22x27 1/2	.015	1.05	**5.00**

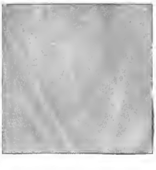
No. 251 White Moulding Mica

This is a white mica plate so bonded as to become flexible when heated. It is free from crushed spots and impurities and is very compact.

This mica is used for moulding bushings, washers, commutator V-rings, channels, and corner cells. It cannot be used for commutator segment insulation.

Material No.	Std. Sheet In.	Std. Thick. In.	Approx. Wt. Lb., Per Sheet	Price Per Lb.
251	24x36	.015	1.00	**$2.70**
251	24x36	.020	1.33	**2.60**
251	24x36	.025	1.66	**2.15**
251	24x36	.030	1.98	**2.15**
251	24x36	1/32	2.05	**2.10**
251	24x36	.035	2.31	**2.10**
251	24x36	.040	2.66	**2.10**
251	24x36	.045	2.99	**2.10**
251	24x36	3/64	3.06	**2.10**
251	24x36	.050	3.32	**2.10**
251	24x36	1/16	4.62	**1.70**
251	24x36	5/64	6.15	**1.30**
251	24x36	1/8	9.24	**1.30**

ELECTRICAL MICA
CUT INDIA



Size In.	Price Per Lb
3 x 6½	$20.00
3 x 7	23.00
3 x 8	28.00
3 x 9	34.00
3 x10	38.00
3½x 3½	15.50
3½x 4	16.50
3½x 4½	17.00
3½x 5	18.00
3½x 5½	19.00
3½x 6	20.00
3½x 6½	22.00
2½x 7	26.00
3½x 8	31.00
4 x 4	19.00
4 x 4½	20.00
4 x 5	22.00
4 x 5½	24.00
4 x 6	26.00
4 x 6½	27.00
4 x 7	28.50
4 x 8	33.00
4 x 9	37.00
4 x10	41.00
4½x 4½	21.00
4½x 5	23.00
4½x 5½	25.00
4½x 6	27.00
5 x 5	25.00
5 x 6	30.00
5 x 7	35.00
5 x 8	38.00
5 x 9	43.00
5 x10	46.00
6 x 6	37.50
6 x 7	40.00
6 x 8	45.00
6 x 9	49.00
6 x10	56.00
6 x12	65.00
7 x 7	44.00
7 x 8	48.00
7 x 9	53.00
7 x10	60.00
8 x 8	55.00
8 x 9	58.00
8 x10	65.00

Size In.	Price Per Lb.	Size In.	Price Per Lb
1 x 2	$3.00	2 x 4½	$11.50
1 x 3	4.00	2 x 5	14.00
1 x 4	5.50	2 x 5½	15.00
1 x 4½	7.50	2 x 6	17.00
1 x 5	10.00	2 x 6½	18.00
1 x 6	14.00	2 x 7	19.00
1 x 7	18.00	2 x 8	24.00
1 x 8	22.00	2 x 9	30.00
1¼x 4	7.00	2 x10	36.00
1¼x 5	13.50	2 x12	45.00
1¼x 6	15.50	2¼x 4	11.50
1¼x 7	18.50	2¼x 5	14.50
1¼x 8	24.00	2¼x 6	17.00
1½x 2	4.00	2¼x 8	26.00
1½x 3	6.00	2½x 3	9.50
1½x 4	7.50	2½x 3½	10.50
1½x 4½	10.00	2½x 4	11.50
1½x 5	14.00	2½x 4½	12.50
1½x 6	16.00	2½x 5	14.50
1½x 7	19.00	2½x 6	17.50
1½x 8	23.00	2½x 7	22.00
1½x 9	27.00	2½x 8	26.00
1½x10	32.00	2½x10	36.00
1½x12	38.00	3 x 3	12.50
1¾x 5	15.00	3 x 3½	13.50
1¾x 6	17.00	3 x 4	15.50
2 x 2	7.00	3 x 4½	16.00
2 x 3	8.00	3 x 5	16.50
2 x 3½	9.50	3 x 5½	17.00
2 x 4	10.50	3 x 6	18.00

Sizes not listed, prices upon request.

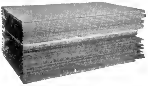
INDIA UNCUT SHEET MICA

Uncut mica is carefully selected as to quality and sizes it will cut. The different grades will cut assorted sizes as shown in table.

All grades are very closely trimmed and the wastage from them when cut will be slight.

Grade No.	Width In.	Length In.	Price Per Lb.
A1	4 to 6	7 to 9	**$9.00**
1	3 to 5	5 to 7	**7.00**
2	1½ to 2½	4½ to 6	**5.50**
3	1½ to 3	3 to 4½	**4.25**
4	1½ to 2½	2½ to 3	**3.25**
5	1 to 2	2 to 2½	**1.90**

FIBRE INSULATING MATERIAL
VULCANIZED RED SHEETS



Intermediate sizes at prices of next thinner, except that on sizes from ⅛ inch and up a variation of .015 inch or less will not be considered intermediate, and will take the price of the nearest standard thickness. Extra charge for cutting.

State Thickness Wanted

Thick. In.	Wt. Lb	Price Per Lb.	Thick. In.	Wt. Lb.	Price Per Lb	Thick. In.	Wt Lb	Price Per Lb
.005	0.8	**$1.50**	.075	12	**$1.00**	⅞	138	**$1.28**
.010	1.6	**1.20**	.100	16	**1.00**	1	155	**1.42**
.015	2.4	**1.10**	⅛	20	**1.00**	1⅛	175	**1.70**
.020	3.2	**1.00**	3/16	30	**1.02**	1¼	195	**2.00**
.025	4.0	**1.00**	¼	40	**1.02**	1⅜	215	**2.40**
.030	4.8	**1.00**	5/16	50	**1.02**	1½	235	**2.90**
.035	5.6	**1.00**	⅜	60	**1.02**	1⅝	250	**3.50**
.040	6.4	**1.00**	½	80	**1.06**	1¾	275	**4.50**
.045	7.2	**1.00**	⅝	100	**1.12**	1⅞	290	**6.50**
.060	9.6	**1.00**	¾	120	**1.18**	2	315	**8.50**

Approximate Manufactured Size of Sheets

.005 to .120 inch thick, 48x80 inches; ⅛ to ¾ inch thick, 44x70 inches; 13/16 to 2 inches thick, 44x 66 inches.

Our Stock Size of Sheets

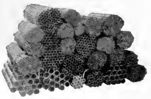
Approximate ¼ size of manufactured size as above.

VULCANIZED RODS—RED, BLACK OR GRAY

Standard Lengths, 3 to 4 Feet

State Diameter Wanted

Diam. In.	Price Per Ft.	Diam In.	Price Per Ft.
3/16	**$0.44**	⅞	**$2.52**
¼	**.48**	15/16	**3.00**
5/16	**.54**	1	**3.00**
⅜	**.60**	1⅛	**4.50**
7/16	**.72**	1¼	**6.00**
½	**.90**	1⅜	**7.50**
9/16	**1.08**	1½	**9.00**
⅝	**1.26**	1⅝	**10.50**
11/16	**1.50**	1¾	**15.00**
¾	**1.80**	1⅞	**24.00**
13/16	**2.16**	2	**36.00**



Intermediate sizes take list of next larger.

VULCANIZED TUBES—RED, BLACK OR GRAY

Standard Lengths, 3 to4 Feet

State Diameter Wanted

Inside Diam., In.	Price Per Foot: 1/16 In. Wall	3/32 In. Wall	1/8 In. Wall	5/32 In. Wall
¼	**$0.24**	**$0.28**	**$0.36**	**$0.44**
⅜	**.28**	**.32**	**.42**	**.52**
½	**.32**	**.36**	**.48**	**.60**
⅝	**.36**	**.42**	**.56**	**.70**
¾	**.42**	**.48**	**.64**	**.80**
1	**.50**	**.60**	**.80**	**1.00**
1¼	**.58**	**.72**	**.96**	**1.20**
1½	**.64**	**.84**	**1.12**	**1.40**

Inside Diam., In.	Price Per Foot: 3/16 In. Wall	7/32 In. Wall	1/4 In. Wall
¼	**$0.52**	....	....
⅜	**.62**	....	....
½	**.72**	**$0.84**	**$0.96**
⅝	**.84**	**.98**	**1.12**
¾	**.96**	**1.12**	**1.28**
1	**1.20**	**1.40**	**1.60**
1¼	**1.44**	**1.68**	**1.92**
1½	**1.68**	**1.96**	**2.24**

Prices for intermediate and larger sizes quoted on application.

SOLDERING SPECIALTIES

ALLEN SODERING STICKS

Makes a joint on any metal about three times as strong as is made with muriatic acid flux and one that is free from subsequent corrosion.

Mfrs. No	Description	Size Pkg Inches	Price Each
039534	Allen	1X5½	$0.30
039536	Samson	1X5	.18

ALLEN SODERING PASTE

Will not corrode or injure in any way surfaces to which it is applied. Soder dipped into this paste is self-fluxing. A form of the Allen stick.

Mfrs No	Style Pkg	Price Each
039537	2 Oz. Tubes	$0.25
039538	2 Oz. Cans	.20
039565	4 Oz. Cans	.35
039539	½ Lb. Cans	.60
039540	1 Lb. Cans	1.00
039541	5 Lb. Cans	4.50
039562	50 Lb. Pail	40.00
039581	500 Lb. Bbl., Lb.	.70

ALLEN SODERING SALTS

In a dry, concentrated form, add 3 parts pater to 1 part salt which makes a flux of sufficient strength for all metals.

Mfrs. No	Style	Price Each
039547	½ Lb. Bottles	$0.50
039548	1 Lb. Bottles	.70
039549	5 Lb. Bottles	3.50

CRESCENT CHATTERTON COMPOUND

Mfrs No	Domestic Price Per Lb
2769	$2.00
Imported	
2770	4.00

RED CROSS LUBRICANT

Size Stick In	Price Each
5x1⅛	$0.50

SOLDERING SPECIALTIES

NOKORODE SOLDERING PASTE

Will flux all metals except aluminum. Takes the place of acid in all soldering jobs.

Cat. No	Size Can	Price
244	2 Ozs., Per Can	$0.20
245	1 Lb., Per Can	1.50
246	10 Lbs., Per Lb.	1.00
247	25 Lbs., Per Lb.	.90
248	50 Lbs., Per Lb.	.90

NOKORODE SOLDERING SALTS

Eliminates the use of corrosive soldering acid and makes perfect, lasting and non-corrosive joints.

Cat. No	Size Can	Std. Pkg	Price Per Lb
249	1 Lb.	6 to Carton	$0.93⅓
250	5 Lbs.	Any Quantity	.90
251	25 Lbs.	Any Quantity	.70
252	50 Lbs.	Any Quantity	.70

HALF AND HALF

In Regular Bars, Price Per Lb. $0.75

WIRE SOLDER

5 Lb. Coils, 25 and 50 Lb. Spools, Per Lb. $0.75

WIPING

In regular bars.
Price Per Lb. $0.75

KESTER FLUX

A self-fluxing solder. The flux is contained in single cells, as shown in illustration, and only enough flux will flow at each time for a single joint. Furnished in 1, 5 and 10 pound spools.

	Per Lb Price
Acid Core Flux Solder	$1.00
Rosin Core Flux Solder	1.00

MELTING POTS AND LADELS

Cast iron with bail. Will hold sufficient metal or solder for all practical purposes; also will fit any make of lire pot.

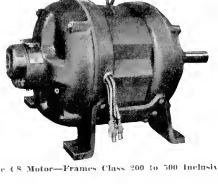
Size	Wt Lb. Each	Price Each
5 Inch	5½	$1.20
6 Inch	6½	1.70
8 Inch	8½	4.40

WROUGHT STEEL LADLES

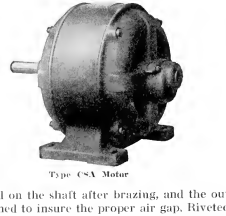
Mfrs. No	Size Inch	Wt. Lb. Each	Price Each	Mfrs. No.	Size Inch	Wt. Lb. Each	Price Each
10	2½	½	$0.80	40	4	1¼	$1.30
20	3	¾	1.00	60	5	2½	2.00
30	3½	1	1.10	80	6	3½	2.40

WESTINGHOUSE MOTORS

TYPES CSA AND CS SQUIRREL CAGE INDUCTION MOTORS
Constant Speed—Continuous Service—¼ to 650 H. P.—110 to 2200 Volts



Type CS Motor—Frames Class 200 to 500 Inclusive



Type CSA Motor

These motors are suitable for constant speed service, and are therefore applicable for driving machinery in nearly every industry. All motors listed will operate continuously at full rating without injury on 10 per cent higher or lower than rated voltage.

Type CSA—Type CSA squirrel cage alternating current polyphase motors are suitable for constant speed service and are applicable for driving small machines in nearly every industry. These motors have been developed after long experience in motor design and a careful study of the factors bearing upon the application of small motors in various industries. They meet the exacting requirements of this service and will prove thoroughly satisfactory to both the makers and users of the machine they drive. Type CSA motors supplement the standard line of type CS motors, thus forming a complete line of polyphase squirrel cage motors, ¼ horsepower and larger. The bearings are well protected from dust, and will not leak oil. The efficiency and power factor are high at full and fractional loads. Large starting torque with minimum starting current enables these motors to be connected directly to the line without the use of any starting device other than a fused knife switch. However, a type WK-10 or WK-20 motor starting switch is recommended. These are of the safety enclosed type and are provided with overload protection by means of thermal cutouts. All frames have feet slotted for belt adjustment and bedplates are not required. Sliding bases can be supplied if desired.

Type CS—The stators of Type CS motors up to and including Class 500 are of the built-up type; larger motors have forged steel frames. The rotor of the Westinghouse squirrel cage motor is carefully constructed to withstand the heating and shocks to which it is frequently subjected. Copper bars are driven into the slots in the laminated steel core. The whole rotor is placed in a specially designed furnace where the bars and copper end rings are brazed together at a temperature which effects a perfect mechanical and electrical connection between the bars and end rings. The core is keyed and pressed on the shaft after brazing, and the outside machined to insure the proper air gap. Riveted, shrouded blowers of rugged design are mounted on both ends of the core, to provide efficient cooling of all parts of the motor. In sizes above 5 horsepower, the stator coils are form-wound, and completely insulated before being installed. Open slots greatly facilitate repairing the stator windings. The bearings are well protected from dust and dirt.

Type CS motors of 5 horsepower and below are usually started by connecting them to full line voltage. For this purpose a Westinghouse 815 switch may be used. Both low voltage and inverse-time-limit overload protection are incorporated in this switch, insuring safety to operators and machinery.

Larger motors are started on reduced voltage by means of either hand or automatic auto-starters, which are supplied with low voltage and inverse-time-limit overload protection.

Bedplates, slide rails, extended shafts and outboard bearings can be supplied. Two-bearing motors can be furnished for wall or ceiling mounting. The efficiency at full and fractional loads is unusually high. The power factor is also high at full load, and the motors have a large overload capacity.

Due to the many sizes and various prices, subject to change of the market, we are not giving detail listings.

Your order or inquiry should give us the following information:

HORSEPOWER, VOLTAGE, SPEED, PHASE, CYCLES

STATE WHETHER WITH OR WITHOUT BASE OR PULLEY, MANUAL OR AUTOMATIC STARTER AND THE APPLICATION OF THE MOTOR

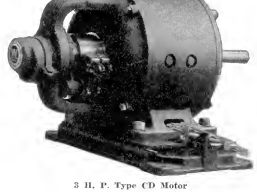
With the forgoing information, it will be possible for us to answer your inquiry promptly and intelligently.

Periodically we issue special price and stock sheets, and special bulletins.

WESTINGHOUSE MOTORS

TYPES CD AND SK DIRECT CURRENT—115, 230 AND 550 VOLTS

Continuous Rated 40° C—Constant Speed—Shunt Wound



3 H. P. Type CD Motor

Type SK motors have inherently very close speed regulation, due to the use of certain materials coupled with correct design. The open hearth steel frame insures absolute uniformity of the magnetic circuit. The stabilizing winding maintains the motor speed practically constant at any point between light load and full load.

A commutator that sparks indicates rapid wear of the brushes and burning and pitting of the commutator bars themselves. The motor operation will be unsatisfactory and maintenance costs will be high. The scientific design of the SK motor eliminates sparking. This is accomplished by the use of properly proportioned commutating poles.

These motors are reversible without changing brush position, a feature which prevents any loss of time and allows just as satisfactory operation in the forward direction as in the reverse. This is a particular advantage in machine tool service. The brush position is permanently fixed, which prevents unsatisfactory operation if the selection of the proper brush position was left to an operator.

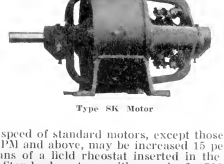
The frame and feet are made of forged open hearth steel, which provides great strength with lightness and compact dimensions. The bearings have large area and the shafts, which are of axle steel are unusually heavy.

The bearings are protected from the entrance of dust and are automatically lubricated so that their life is very long. They are designed to permit the motor to be used in the severest gear service.

The overload capacity is ample for all services in which these motors are used, and extremely high momentary peak loads can be handled without injury to the motor.

Motors (except totally enclosed type) will operate continuously at full rating, without injury, on 10 per cent higher or lower than rated voltage. Totally enclosed motors will operate at rated horsepower continuously with standard guarantees on rated voltage and intermittently without injury on 10 per cent higher or lower than rated voltage.

Speeds may vary 7½ per cent from those listed on frames 43 and smaller and 5 per cent on frames 53 and higher. The speed of any shunt motor increases as its temperature is increased. The resistance of field winding increases with the temperature. When the motor is cold shortly after starting up, or when it has not run long enough at full load to become warm, the field current is stronger than when hot, resulting in strong magnetic field, more flux being forced through the magnetic circuit of the motor resulting in a lower speed. The flux when the field is cold will in general exceed the flux when the field is hot by approximately 10 per cent, which results in difference of speed of this amount. Speeds are guaranteed within 5 per cent of rated speed to take care of manufacturing variations; hence when the motor is cold it is possible to get a speed which is 15 per cent below rated speed of motor or a 1700 RPM motor can run at about 1450 RPM when cold.



Type SK Motor

The speed of standard motors, except those rated 1700 RPM and above, may be increased 15 per cent by means of a field rheostat inserted in the shunt field. Standard motors with speed of 1700 RPM and above may be increased 10 per cent. These field rheostats are used in addition to the standard starter furnished with the motor.

Price and weight of complete motor includes starter as listed, standard paper pulley, two rails or bedplate and start and stop push button. Type SK motors are regularly supplied for floor mounting. CD motors require a bedplate where a belt adjustment of over an inch is required. Bedplates for these motors are arranged for floor mounting only and are included in complete motor price. SK frames, 180 and above, are supplied with bedplate arranged for floor mounting only.

TYPE D STARTING RHEOSTATS

For non-reversing service and provide low voltage protection. They are of the face plate type and resistor is enclosed in perforated box which is mounted directly on back of face plate. When an enclosed rheostat is supplied a safety cover is bolted over the front of rheostat face plate. If enclosed safety line switch is desired to completely disconnect motor from the line ask for Catalog 41-A.

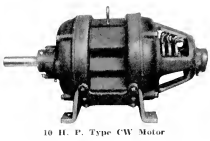
Type D Starting Rheostat

WESTINGHOUSE POLYPHASE INDUCTION MOTORS

TYPE CW WOUND-ROTOR INDUCTION MOTORS

For Constant and Varying Speed Continuous Duty Service

½ Horsepower and Above—Two and Three Phase—110, 220, 440, 550, 2200 Volts—25, 40, 50, 60 Cycles



10 H. P. Type CW Motor

These motors can be used for belted, coupled or geared service and find extensive application in driving compressors, plunger pumps, positive pressure blowers, hoists requiring a continuous duty motor, and wherever it is necessary to bring up to speed, loads requiring heavy starting torque on power lines where close voltage regulation is imperative. Every effort has been made to reduce the diameter and weight of rotors to a minimum, a feature that makes these motors especially adapted for quick starting, stopping and reversing. Cleanliness and quietness of operation are also important factors. Heavy starting torque with low starting current is obtained by inserting resistance in series with the rotor windings when starting the motor. As the motor attains speed, the resistance is gradually cut out of the circuit by means of either a manually operated or a magnetic starter furnished with the motor.

For varying speed service, a controller with resistors is furnished to obtain continuous operation on any running point from one-half to full speed for either varying or constant torque service.

The efficiency, power factor and overload capacity are high. Special attention has been given to the efficiency and power factor at both full and fractional loads, resulting in minimum operating expenses.

Construction—In the design of any complete line of motors, varying in size from one-hlaf to several hundred horsepower, the type of construction and the materials used are determined, chiefly by the size of the motor and the service to be rendered. Manufacturing processes applicable to small sizes cannot always be used to advantage on the large sizes and vice versa. The service to be performed influences, to a considerable extent, some features of the design, especially those which determine weight and size. Many other factors require that such a complete line of motors shall include several types of construction and materials.

Insulation—Long experience in the design and construction of electrical apparatus, and a careful study of its requirements, has enabled Westinghouse to produce an insulation of the very highest quality. The materials used in the insulation of type CW motors are chosen not only for dielectric strength but for mechanical strength as well, so that long life of the materials is assured.

Rotors—The rotors of these motors have a rugged construction especially adapted to any severe service in which they may be used. The cores for motors 25 horsepower and below are made of steel laminations, riveted together to form a unit, which is mounted on the shaft. In larger motors, the laminations are mounted on a cast iron spider which is pressed on the shaft and keyed. In all cases, the shaft can be pressed out without disturbing the core and windings.

Stator—The excellent design, the high grade of insulation used, and the careful workmanship in placing and bracing the windings insure a stator equal in ruggedness to the rotor. As in the case of the rotor, the stator windings are provided with insulation suitable for all ordinary applications, such as machine shops, woodworking shops, textile mills and where ordinary conditions of moisture or weak acid fumes exist, as in mines, pump pits, tanneries and packing plants.

Shafts—The shafts used for type CW motors are made from axle steel bought under rigid specifications. This grade of steel is much tougher and stronger than the machinery steel so generally used. They are of large cross-section insuring rigidity in the most severe service, and they will not twist nor spring when subjected to high torque.

Ventilation—Special attention has been paid to creating ample ventilation, and to eliminating air pockets and hot spots. Free passage of the air currents is provided. Fans on the rotors give a positive direction to the air flow and keep it in constant motion while the motor is operating.

Collector—The brass collector rings on the larger motors are shrunk on an insulated sleeve which is pressed on the shaft and the connections are enclosed in insulating tubes. In the smaller size motors, the rings and their connections are moulded into the insulation under pressure. The construction on all sizes of motors is such that the collectors may be removed without disturbing the alignment of the rings.

Brushes—Graphite or metal-graphite brushes are used, depending on the particular size of the motor. Shunts on all brushes relieve the springs of current and assure good contact at all times.

Control—For constant speed service and varying speed non-reversing service, types RF or S controllers and resistors are used with these motors. For varying speed reversing service, type EA or S controllers and resistors are used. These controllers are all manually operated. Where magnetic control is desired, type F magnetic contactor starters and controllers can be supplied in a variety of styles, as required to suit operating conditions.

Modifications of Standard Designs—Although the standard motors described above are applicable to the majority of drives, type CW motors with special features to meet unusual service conditions can be supplied. For example, grease-lubricated bearings, covers for the top half of the front bracket, special insulation to withstand chemical fumes, moisture and grit. Mechanical modifications such as vertical motors, back-geared motors, split brackets on the end opposite the collector to facilitate the removal of the rotor with a pressed-on pinion or coupling, idler attachments for short belt centers on small sizes (200 to 500 frames) and parts for conduit connections can also be furnished.

Motor Ratings—Ratings of type CW motors are, in general, similar to type CS motor ratings. Complete information, weights, prices, etc., furnished on application.

WESTINGHOUSE MOTORS

TYPE CI ALTERNATING CURRENT WOUND-ROTOR MOTORS

1½ to 200 H. P.

Type CI wound-rotor motors are especially designed for heavy duty on cranes, hoists, lift and swing bridges, railway turntables, transfer tables, etc., and are adapted, both mechanically and electrically, to meet the requirements of severe intermittent varying-speed reversing service. Long experience in motor building and thorough familiarity with the service requirements, have resulted in a motor that is giving satisfactory service under all industrial conditions for which it was designed.

The frames and brackets are very strong and massive. The frames of the smaller sizes are made of steel laminations riveted between forged steel endshields, twelve rivets being used; frames of the larger sizes are cast iron. Maximum strength has been attained, while weight and over-all dimensions have been reduced to a minimum. The self-oiling bearings of the oil-ring type are ample in size to insure long wear and are very cool running. Cast iron brackets with reinforced ribs, accurately machined to fit the frame, assure the utmost rigidity and perfect alignment of the bearings at all times.

The rotor is small in diameter, thus reducing the flywheel effect. This feature, together with perfect balance and secure attachment of the windings, makes these motors especially adapted for frequent starting, stopping and reversing. The shaft is of axle steel; it can be removed from the rotor without disturbing the windings. Standard motors are furnished with tapered shaft extension at both ends.

Partially closed slots and shaped coils are used in both the rotor and stator of the smaller motors. Larger motors have open slots and form-wound coils held in place by wedges. All coils are well insulated, and those of the stator are rigidly braced at the ends by means of insulated steel rings.

Type CI motors possess excellent electrical characteristics and the pull-out torque of all motors is approximately two and one half times full load torque.

RATINGS

60 Cycle, 2 and 3 Phase, 2 to 200 H. P. Inc., 220-440-550 Volts*

H. P. ½ Hr. 50° C.	Approx. Full Load Speed Rpm.	Poles	Frame No.	Approx. Amps. ½ Hour Rating †220-440 Volts	550 Volts	Approx. Net Wt Lb.
2	870	8	254C	8	3.5	215
3	1160	6	234C	11	5	184
3	870	8	254C	14	6.5	215
5	1160	6	254C	17	7	215
5	870	8	352C	18.5	7.5	268
7½	1160	6	352C	23.5	10	268
7½	870	8	370C	29.5	12.5	317
11	870	8	460C	37	15	460
11	1160	6	370C	35	14	317
15	1160	6	460C	45.5	18.5	460
15	870	8	464C	52	20.5	476
15	690	10	566C	54	22	668
20	1160	6	464C	56.5	23	476
20	870	8	480D	64.5	26	580
20	690	10	566C	71	32.5	740
25	1160	6	480D	71.5	28.5	580
25	870	8	566C	83	33	668
25	690	10	586C	77.5	31.5	790
30	1160	6	566C	85	34	740
30	870	8	586C	95.5	38	790
30	690	10	644C	104	41	1381
35	575	12	752C	129	52	1840
30	870	8	642C	142	56.5	1350
50	690	10	654D	163	66	1570
50	575	12	774C	185	76	2505
75	870	8	646D	188	79	1381
75	690	10	658D	207	82	1612
75	575	12	774C	238	95	2505
100	690	10	754D	291	116	2144
100	575	12	856C	306	121	3010
150	690	10	856C	408	163	3010
150	575	12	874C	405	162	3670

60 Cycle, 3 Phase, 2200 Volts

H. P. ½ Hr. 50° C.	Approx. Full Load Speed Rpm.	Poles	Frame No.	Approx. Amps. ½ Hour Rating †220-440 Volts	550 Volts	Approx. Net Wt Lb.
50	690	10	750C	13	.....	2014
75	870	8	752C	19.5	.....	2044
75	690	10	774C	20.5	.....	2505
75	575	12	774C	22	.....	2505
100	690	10	774C	27.5	.....	2505
150	690	10	856C	39	.....	3010
150	575	12	874C	40	.....	3670
200	690	10	874C	52	.....	3670
200	575	12	956A	54	.....	4100
200	495	14	956A	58	.....	4900

25 Cycle, 3 Phase, 220-440-550 Volts*

H. P. ½ Hr. 50° C.	Approx. Full Load Speed Rpm.	Poles	Frame No.	Approx. Amps. ½ Hour Rating †220-440 Volts	550 Volts	Approx. Net Wt Lb.
3	725	4	340C	9.5	3.5	190
5	725	4	352C	15	6	268
7½	725	4	461C	21.5	8.5	465
10	725	4	473C	28	11	522
15	725	4	565C	43.5	17.5	741
20	725	4	583C	53	21.5	820
20	470	6	587C	55	22	905
25	725	4	587C	68	27	905
25	470	6	642C	68	27.5	1350
30	725	4	642C	83	33	1350
30	470	6	646C	100	40	1381
35	725	4	653C	92	36.5	1520
35	470	6	646C	100	40	1381
30	470	6	663C	129	52	1750
50	725	4	663C	129	52	1750
50	470	6	662C	136	54	1557
75	725	4	761C	180	.....	2456
75	470	6	772C	190	.....	2360
50	470	6	771C	228	.....	2410
75	470	6	871C	240	.....	3600
100	470	6	.....	.....	.....	.....

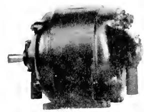
*All voltages listed are for either 2 or 3 phase, except 550 volts, which is for 3 phase only.

†Amperes per terminal for 220 volts; for 440 volts the ampere values are one-half of those stated.

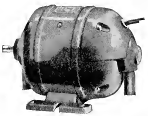
WESTINGHOUSE MOTORS

SMALL SINGLE PHASE AND DIRECT CURRENT MOTORS

Temperature Rating—Full Load Continuously 40° C Rise



Type CAH



Type CDH

Types CAH and CDH are designed for high torque and services for driving such appliances as washing and ironing machines, etc. These motors are practically enclosed. A voltage 10 per cent above or below will operate either type satisfactorily. The CAH motor is interchangeable with the CDH, rating for rating, with respect to mounting and principal dimensions. All frames have slotted feet for belt adjustment. Sliding bases can be supplied if desired at a slight additional cost. Type CAH is for alternating current and CDH for direct current.

Prices and weights cover motor with pulley and binding posts. If cord and plug is required, it should be specified as a separate item. Ten foot connecting cord S No. 184511 and plug at **$1.25** additional.

TYPE CAH ALTERNATING CURRENT MOTORS

Single Phase—60 Cycle—110-220 Volts

						Motor With Pulley				Standard Pulley		
						110 Volts		220 Volts				
H.P.	No. of Poles	Full Load RPM	Frame No.	Approx. Net Wt. Lb. Bare Motor	Shpg. Wt. Lb. Motor With Pulley	*Mfrs. No.	Price Each	*Mfrs. No.	Price Each	*Mfrs. No.	‡Diam.	Omission Price
						60 Cycle						
1/8	4	1725	445	17	20	304941	$20.00	304942	$21.00	168154	2	$0.65
1/6	4	1725	544	19	23	304945	22.00	304946	23.00	168154	2	.65
1/4	2	3450	525	22	24	317800	27.00	317801	28.00	168154	2	.65
1/4	4	1725	545	22	24	304953	25.00	304954	26.00	168154	2	.65
						50 Cycle						
1/8	4	1440	544	22½	24	305420	20.00	305421	21.00	168144	2⅛	.65
1/6	4	1440	545	22½	24	305426	22.00	305427	23.00	168144	2⅛	.65
1/4	4	1440	645	30	35	304973	25.00	304974	26.00	168144	2⅛	.65
						40 Cycle						
1/8	4	1140	545	22½	29	305418	24.00	305419	25.00	168144	2⅛	.65
1/6	4	1140	645	30	35	305424	26.00	305425	27.00	168144	2⅛	.65
1/4	4	1140	645	30	35	304969	28.50	304970	29.50	168144	2⅛	.65
						25 Cycle						
1/8	2	1450	525	22½	24	304963	24.00	304964	25.00	168144	2⅛	.65
1/6	2	1440	625	30	35	305422	26.00	305422	27.00	168144	2⅛	.65
1/4	2	1450	625	30½	35½	304965	28.50	304965	29.50	168144	2⅛	.65

*Number does not include pulley.

‡Single groove pulley for 5/16 inch round belt dimension applies to pitch circle.

TYPE CDH DIRECT CURRENT MOTORS

Compound Wound—32-115-230 Volts

				32 Volts		115 Volts		230 Volts			
H.P.	Full Load RPM	Frame No.	Shpg.° Wt. Lb.	Mfrs. No.	Price Each	Mfrs. No.	Price Each	Mfrs. No.	Price Each	For Cord With Plug‡	Omission for Pulley†
1/8	1725	425	14	310233	$24.00	310231	$23.00	310232	$24.00	$1.25	$0.65
1/6	1725	525	21.5	210240	27.00	310238	25.00	310239	26.00	1.25	.65
1/4	3450	525	21.5	....	....	374069	30.00	374070	31.00	1.25	.65
1/4	1725	525	21.5	210245	31.00	310243	28.00	310244	29.00	1.25	.65
1/4	1140	625	45	210188	39.00	310187	36.00	310186	37.00	1.25	.65
1/2	1725	625	45	310183	*51.00	310181	*48.00	310182	*48.00	....	1.80
				Shunt Wound							
1/2	1725	625	45	....	....	310250	*48.00	310251	*48.00	....	.65

*Price of ½ horsepower motor includes starting rheostat. If not desired, omit at **$5.00.**

†Pulley No. 168154, 2 inch diameter pitch circle for 5/16 inch round belt furnished with motors ¼ horsepower and smaller. Flat face pulley No. 174332, size 3x1¼ inches furnished with ½ horsepower motor.

‡Standard style number motor is equipped with two short leads projection through a bushing in the commutator cover, which will serve as a guide in connecting up the motor either with or without the cord and plug.

°Net weight 85 to 90 per cent of shipping weight.

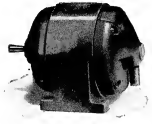
Note.—Numbers cover motor only. If shunt motors are required the order should so state. Shunt motor prices are same as compound given above.

WESTINGHOUSE MOTORS

SMALL SINGLE PHASE MOTORS

Temperature Rating—Full Load Continuously 40° C Rise

TYPE ARS REPULSION INDUCTION—60 CYCLE, 110-220 VOLTS



Type ARS

The ARS motor is a repulsion induction motor especially designed for pumps and compressors and other applications requiring comparatively high starting torque with low starting current.

Approximate values of torque and current: Starting torque, 2 to 2½ x full load torque. Maximum torque, 3 x full load torque. Starting current, 3 x full load torque. The starting current is about ⅓ to ½ of corresponding split phase motor.

The motor is mounted in a semi-enclosed housing having protected openings and carefully designed ventilating ducts, thus maintaining a uniform temperature which prevents hot spots. Except when surrounded by steam and fumes or suspended dirt all requirements of an enclosed motor are met. The bearings and grease cups are large, insuring ample lubrication and long life. One-half horsepower motors have oil-ring lubrication. All other sizes are equipped with grease cups.

Each motor is provided with four leads, which can be connected to operate on either 110 or 220 volts, according to instructions on tag. Motors will operate at full rating continuously without injury on 10 per cent higher or lower than rated voltage.

Price of complete motor covers motor with pulley and sliding base. Either grooved or flat face pulley can be supplied on Nos. 35 and 37 frame motors. Unless otherwise specified, a grooved pulley will be furnished.

Semi-Enclosed—Drip Proof—Constant Speed—Continuous Service

			Manufacturer's Number					Shpg. Wt. Lb.		Net Wt.	Price Each		Omission Price	
H.P.	Full Load RPM	Frame No	Bare Motor	Sliding Base	Grooved Pulley	Flat Face Pulley	Pulley Size	Bare Motor	Slid. Base	Bare Mot.	Complete Motor	Bare Motor	Sliding Base	Less Pulley
†⅛	1725	25-B	305325-D	184549	168154	....	2	30	9	25	$23.00	$22.00	$0.50	$0.50
†⅙	1725	25-B	305326-D	184549	168154	....	2	30	9	25	26.00	25.00	.50	.50
†¼	1725	35-B	317674-B	184554-A	168154	298604	2½x1½	40	10	35	29.25	28.00	.75	.50
‡¼	1140	55-C	309074	310272		174332	3 x1¾	60	12	53	44.50	43.00	.75	.75
†⅓	1725	55-B	374192	310272	....	174332	3 x1¾	60	12	53	36.50	35.00	.75	.75
*½	3450	37-A	374191	184554-A	168154	298604	2½x1½	50	10	45	......	45.00	......	......
†½	1725	55-B	309073	310272	....	174332	3 x1¾	60	12	53	45.25	43.00	1.50	.75
‡½	1140	75-C	322180	310272	....	100443	3½x2½	82	12	75	61.00	58.00	1.50	1.50
†¾	1725	75-C	388043	310272	....	100443	3½x2½	82	12	75	60.00	57.00	1.50	1.50
†1	1725	75-B	317890	310272	....	100443	3½x2½	82	12	75	69.00	66.00	1.50	1.50

*2 Poles. †4 Poles. ‡6 Poles.

TYPE AR ALTERNATING CURRENT MOTORS—60 CYCLE, 110-220 VOLTS

The AR motors will operate at full rating continuously without injury on 10 per cent higher or lower than rated voltage. These motors start from rest as repulsion motors, developing a torque of approximately 1¾ to 3 times full load on sizes below 2 horsepower, and from 3½ to 4 times on sizes 2 horsepower and above. When up to 90 per cent of synchronous speed they change from repulsion to induction motors. While making this changeover or pulling in, they develop approximately 110 per cent of full load torque. If desired, rheostats can be furnished for limiting the starting current to 1¼ times full load current for full load torque.

Each motor is provided with four leads which can be connected to circuits of either 110 or 220 volts according to instructions on tag accompanying the motor. Rheostats cannot be used interchangeably on either 110 or 220 volts; voltage must be specified when ordering rheostat.

Price and weight of complete motor includes standard paper pulley and sliding base for floor mounting. Frames 460, 555 and 575 have slide rails instead of sliding base. Frames 167 and below have slotted feet for belt adjustment and sliding base may be omitted. If specified, motors will be arranged for wall or ceiling mounting without extra charge.

Open Type—Constant Speed—Continuous Rated

						Complete Motor				Omis. or Add.		
						With Starting Switch						
H.P.	No. of Poles	Full Load RPM	Frame	Std. Pulley Diam. and Face In	Shaft Diam In	110 Volts	220 Volts	Without Switch	Bare Motor	Sliding Base	Pulley	Addition for Rheostat
½	4	1750	065	3½x2½	¾	$55.25†	$55.25†	$48.25	$46.00	$0.75	$1.50	....
½	6	1160	163	3½x2½	¾	73.00†	73.00†	66.00	63.00	1.50	1.50	....
¾	4	1750	143	3½x2½	¾	72.00†	72.00†	65.00	62.00	1.50	1.50	....
¾	6	1160	165	3½x2½	¾	89.00†	89.00†	82.00	79.00	1.50	1.50	...
1	4	1750	145	3½x2½	¾	82.00†	82.00†	75.00	72.00	1.50	1.50	$11.00
1	6	1160	167	3½x3	⅞	103.50†	103.50†	96.50	92.00	2.50	2.00	11.00
1½	4	1750	147	3½x3	⅞	104.00†	102.50†	95.50	92.00	1.50	2.00	11.00
2	4	1750	326	4 x3	1¼	116.00	114.50	107.50	103.00	2.50	2.00	12.00
2	6	1160	330	4 x4	1¼	143.00	141.50	134.50	130.00	2.50	2.00	12.00
3	4	1750	330	4 x4	1¼	140.00	139.00	131.50	127.00	2.50	2.00	12.00
3	6	1160	460	5 x4½	1⅝	181.00*	180.00*	172.50	166.00	4.00	2.50	12.00
5	4	1750	460	5 x4½	1⅝	207.50*	180.00*	172.50	166.00	4.00	2.50	16.00
5	6	1160	555	7 x6	1⅞	260.00*	232.50*	225.00	217.00	5.00	3.00	16.00
7½	4	1750	555	7 x6	1⅞	265.00*	252.00*	217.00	209.00	5.00	3.00	27.00
7½	6	1160	555	7 x6	1⅞	324.00*	311.00*	276.00	268.00	5.00	3.00	27.00
10	4	1750	555	7 x6	1⅞	311.00*	298.00*	263.00	255.00	5.00	3.00	38.00
10	6	1160	575	7 x6	1⅞	378.00*	365.00*	330.00	320.00	7.00	3.00	38.00

*This motor is provided with slide rails instead of sliding base.

†Base is not required or included because motor has slotted feet for belt adjustment. If base is desired it may be added at the price indicated.

WESTINGHOUSE MOTORS

PORTABLE POWER STAND WITH TRIPOD MOUNTING

32 Volt D. C.—110 Volt A. C.

The 32 volt D. C. stand is intended to provide a souree of portable power for operating the many small devices that previously have been operated by hand or a small gasoline engine. It enables the farmer to obtain the maximum usefulness from his light plant as he obtains power as well as light.

The motor has an output of ¼ horsepower and is compound wound which insures ample starting torque for all applications requiring ¼ horsepower or less.

The armature shaft speed is 2100 RPM, and the back-geared shaft turns at 250 RPM. A 6⅝ inch flat face pulley and a 2¾ inch grooved pulley are permanently attached to the slow speed shaft. A 1½ inch flat face pulley and a 2 inch grooved pulley are supplied for use on the high speed shaft. The flat face pulleys are designed for a ⅞ ineh flat belt and the slow speed grooved pulley for a ⅜ inch round belt.

The 110 volt A. C. stand is intended for similar applications except that it is adapted for use with the ordinary eity lighting circuit. The motor is rated ¼ horsepower 110 volt single phase A. C.

The armature shaft speed is 1725 RPM, and the baek-geared shaft turns at 210 RPM. A 6⅝ inch flat face pulley and a 2¾ ineh grooved pulley are permanently attached to the slow speed shaft. A 1½ inch flat face pulley and a 2 inch grooved pulley are supplied for use on the high speed shaft. The flat face pulleys are designed for a 1 inch flat belt and the slow speed grooved pulley for a ⅛ inch round belt.

For both A. C. and D. C. stands the motor is mounted on a substantial tripod base and a telescopic rod is provided to braee the motor and secure the proper tension for the belt. The handle on top of the stand makes it easily carried from place to plaee as the total weight is but 57 pounds. Overall height 27½ inehes.

Ten feet of reinforced two eonductor lamp cord with separable attachment plug is attached to the motors. The small power eonsumption enables this motor to be attaehed to any light soeket.

Many devices about the house, workshop or farm can be equipped with a permanently mounted back-geared motor. For permanent location a sliding base No. 184554 will be furnished instead of the tripod mounting at the same priee.

32 Volts D. C.			110 Volts A. C.		
Mfrs. No.	Shpg. Wt.Lb.	Price Each	Mfrs. No.	Shpg. Wt.Lb.	Price Each
306887	75	**$48.00**	**310134**	75	**$45.00**

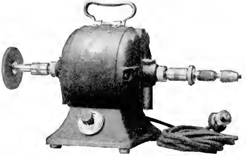
Priee and weight cover power stand complete with four pulleys and 10 feet of reinforced lamp cord.

WESTINGHOUSE MOTORS

BUFFING, POLISHING AND GRINDING MOTORS

115-230 Volts Direct Current

110-220 Volts Alternating Current



Alternating Current Motor with Grinding Wheel and Drill Chuck

Polishing and grinding by means of eleetrieity is no longer novel but it is the most practical and the quickest method of aeeomplishing the tedious labor formerly done by hand. With this polishing and grinding motor it is possible to simply snap the switch, starting the motor, and put a brilliant luster on silver pieces or a keen edge on cutlery in a few moments. The motor is always ready and needs only to be connected to any electric lamp soeket for use.

The motor frame is a cylindrieal iron easting. It is absolutely dust-proof and affords full protection to the interior parts. The base is a hollow easting bolted to the frame and is of just the right height to allow the necessary clearanee between the buffing wheel and motor support. The shaft is extended at both ends for chucks which carry the buffing and grinding wheels. The bearings are bronze bushings pressed into housings in the bearing brackets. They are of the wick-fed, self-oiling type with ample provision against dripping. Machine oil or unmedieated vaseline is reeommended as a lubricant.

APPLICATIONS AND ATTACHMENTS

Jewelers, opticians and dentists find this motor invaluable for all kinds of grinding, drilling and polishing. It is adapted to these various operations by means of the attachments listed on another page. Ritter chucks can be used with the motor if desired.

The large amount of silverware in use by hotels and restaurants can be quickly and thoroughly polished in only a fraction of the time required by hand. Steel knives can be kept sharp with ease by the use of the emery wheels.

For grinding small parts the grinding motor is ideal. It is portable, light and eonvenient so that it ean be plaeed where desired. Burnishing and polishing of small parts ean also be done.

Prices and weights inelude carborundum wheel, buffing wheel, left hand flange ehuck, right hand tapered ehuek, 10 feet lamp cord and plug and stick of rouge.

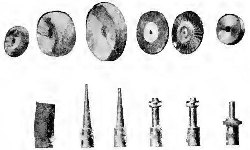
Alternating Current—60 Cycle—Single Phase

Mfrs. No. Motor Only	H. P.	Volts	Full Load RPM	Shpg. Wt.Lb.	Price Each*
273963	⅙	110	3450	35	**$37.00**
273964	⅙	220	3450	35	**38.00**
		Direct Current			
273965	⅙	115	2550	35	**33.00**
273966	⅙	230	2550	35	**34.00**

*Price is for motor with attachments as listed above.

WESTINGHOUSE MOTORS

ATTACHMENTS FOR BUFFING, POLISHING AND GRINDING MOTORS



Polishing and Grinding Wheels
Rouge, Tapered and Flange Chueks, Adapter for Ritter Chueks

The uses whieh may be made of a small motor are practically unlimited, in fact the only limit is the ingenuity of the owner. The list of accessories which follows includes:

1—Chueks by means of whieh the motor can be converted into a small lathe for either metal or woodworking.

2—Various grinding, polishing, buffing and brushing wheels.

3—Pulleys for use in belt driven applications.

Booklet No. 4482F on Popular Motor Mechanics describes many practical and novel uses for small motors about the home and workshop.

Separate Selling Prices

Mfrs. No	Item	Description	Price Each
164226	1	Combination Chuck to Fit Motor Frame Class 300 CA and CD	$2.75
189977	2	Combination Chuek to Fit Motor Frame Class 400 CA and CD	2.75
189978	3	Combination Chuek to Fit Motor Frame Class 400 and 500 CAH and CDH	2.75
164227	4	*3 Step Jeweler's Chuck to Fit Motor Frame Class 300 CA and CD	1.65
189979	5	*3 Step Jeweler's Chuek to Fit Motor Frame Class 400 CA and CD	1.65
189980	6	*3 Step Jeweler's Chuek to Fit Motor Frame Class 400 and 500 CAH and CDH	1.65
122650-A	7	Carborundum Wheel ¾ In. Face, 2½ In. Diameter, ½ In. Bore; to Fit Items 1, 2 and 3	.70
121666	8	Buffing Wheel, 3 In. Diameter, 30 Ply to Fit Items 1, 2 and 3	.60
125815	9	Brush Wheel, 3 In. Diameter to Fit Items 1, 2 and 3	.55
184511	10	Connecting Cord and Plug, 10 Foot Reinforced Cord with Plug and Terminal Clip for Use with ¼ Horsepower Motor and Smaller	1.25
184549	12	Sliding Base for Class 500 CAH and CDH Frames, Weight 5 Pounds	2.40
310272	13	Sliding Base for Class 700 Frame, Weight 25 Pounds	3.25
188502	14	Sliding Base for Class 800 Frame, Weight 25 Pounds	4.50

*For grinding wheel of ¼, 5/16 and ⅜ inch bore. These prices may be used as addition or omission prices.

WESTINGHOUSE MOTORS

ATTACHMENTS FOR BUFFING, POLISHING AND GRINDING MOTORS

Set of 8 Ritter Chucks

Ritter chucks are sold only in sets of eight consisting of three right-hand flange chucks and three left-hand flange chucks, ¼, 5/16 and ⅜ inch hubs; left-hand tapered chuck for buffing wheels, and an adjustable chuek for drills, burs, etc. An adapter is necessary with each set.

Mfrs. No.	Description	Price Each
164229	Right Hand Tapered Chuck	$2.25
164230	Left Hand Tapered Chuck	2.25
164231	Right Hand Flange Chuck	1.45
164232	Left Hand Flange Chuck	1.45
121666	Buffing Wheel, 3 Inch Diameter	.60
134613	Stick of Rouge for Buffing Wheel	.40
164228	Adapter for Ritter Chucks	1.85
121665	Carborundum Wheel, 3x¼ Inch Face, 5/16 Inch Bore	.70
125815	Brush Wheel, 3 Inch Diameter	.55
139589	Set of Ritter Chucks	14.50

PULLEYS

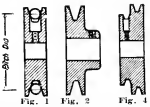


Fig. 1 Fig. 2 Fig. 4

Any pulley in this list can be substituted for a pulley of the same bore included in the complete motor price without change of price, except that when a double-grooved pulley is substituted for a single-grooved pulley, **$0.25** will be added to the price of the complete motor.

Prices of pulleys not listed below will be furnished on application.

Prices cover pulleys when purchased separate from motor.

Single Groove

Mfrs. No.	Fig.	Hub Dimens. In. Bore	Hub Dimens. In. Lgth	Pitch Diam.* In. of Pulley for Round Belt of ¼ In. Diam.	5/16 In. Diam.	⅜ In. Diam.	Price Each
174088	1	⅜	½	1⅛	......	......	$1.00
180282	2	7/32	1 3/32	1 1/16	1 3/16	1 5/16	1.00
106802	1	7/16	½	1⅜	1½	......	1.00
168143	2	7/32	1⅛	1 15/16	2 1/16	2 3/16	1.00
168126	2	½	31/32	1 1/16	1 3/16	......	1.00
168147	2	½	31/32	1⅛	1¼	......	1.00
168150	2	½	1 1/16	1½	1⅝	1¾	1.00
168154	1	½	½	1⅞	2	......	1.00
168152	2	½	1 1/16	2	2⅛	2¼	1.00
171355	1	½	⅝	2 15/16	3 1/16	3 9/16	1.00
171354	1	½	⅝	3 5/16	3 7/16	3 9/16	1.00
168144	2	⅝	1¼	......	2⅛	2¼	1.00
168123	2	⅝	1	2 9/32	2 11/32	......	1.00

Double Groove

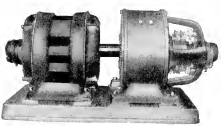
Mfrs. No.	Fig.	Bore	Lgth	¼ In. Diam.	5/16 In. Diam.	⅜ In. Diam.	Price Each
61177	4	7/16	31/32	{1⅝ 2⅜	1⅝ 2⅝}	......	1.25
61166	4	½	31/32	{1⅜ 2⅜	1⅝ 2⅝}	......	1.25

*Diameter of circle of belt when drawn into pulley groove varies from a given pulley with belt diameter. See Fig. 1.

WESTINGHOUSE MOTOR GENERATORS

FOR MOTION PICTURE PROJECTION, INDUSTRIAL SERVICE AND BATTERY CHARGING

There are certain classes of service for which direct current gives much more satisfactory results than alternating current. Among these may be mentioned passenger elevators where high speed and accurate control of the car is desirable; motion picture projection, for which direct current is more



Motion Picture Motor Generator (CS-SK) for Polyphase Power Circuits

Those for Industrial and Battery Charging Service Are Mechanically Similar

economical and gives better illumination; for charging storage batteries, which require direct current; and for many industrial applications where good work requires perfect control of the motion.

Where the only available circuits are alternating current, a most satisfactory method of obtaining direct current for such applications is by using a Westinghouse motor generator.

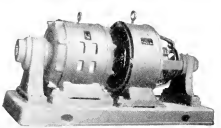
Service—There are three general classes of service to which SK generators may be applied, namely, lighting and power, battery charging and exciter service. The service required of the machine must always be specified when ordering.

For lighting and power service, the generator will be compounded to give a voltage regulation of 118 volts no load to 125 volts full load.

For battery charging service a shunt-wound generator with a voltage adjustment from 125 to 60 volts by means of shunt field control, will be supplied at the same price as compound wound of the same capacity.

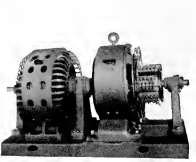
When machines are to be used as exciter sets, the service should be specified on the order; and if used in connection with a voltage regulator, the type of regulator should be specified, in order that the proper field rheostat can be supplied with the generator.

Motor generators for motion picture projection consist of a single phase, 60 cycle or polyphase, 25, 50 and 60 cycle, or 230 volts direct current motor mounted on a common base with a specially designed 75-80 volt flat compound wound generator. These motor generators are of sufficient capacity to carry the overload while one arc is projecting the picture and the other arc is being "warmed up" for projecting the picture on the next reel. The generators are designed for supplying current to the arcs operating in parallel circuits. Since the generators are a source of constant voltage, two or more arcs of different amperage can be operated at the same time; for example, a stereoptican are for projecting slides or a spot light, if desired, can be operated at the same time a picture is being projected. The generators are designed to operate at 75-80 volts full load and give approximately this same voltage when two arcs are in operation during "change over" period. Suitable accessories are furnished with these sets.



Induction Motor Generator—Two-Bearing Pedestal Type

Synchronous motor generators consist of a self-starting, rotating field, synchronous motor mounted on a common bed plate and shaft with a direct current commutating pole generator. To operate these sets, motor field rheostats, generator field rheostats, field discharge resistors for motor and generator, auto transformers and starting equipment can be furnished. Exciters are not required with the 125, 250 or 275 volt (direct current end) motor generators as they are designed for self-excitation from the direct current end. Exciters are required with 600 volt (direct current end) motor generators.



Standard 150 Kw. 1200 R. P. M. Synchronous Motor Generator

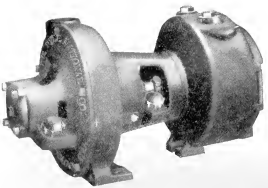
PYLE-NATIONAL TURBO-GENERATORS

These turbo-generators are of varied design and capacity. The steam turbine without generator, is adaptable to a wide range of power service.

All Pyle-National turbo-generators are self-contained units which do not require switchboards, rheostats or other regulating devices. The standard machines operate on steam pressure from 125 pounds up. If desired to operate on steam pressure below 125 pounds, special low pressure valve and nozzle will be furnished.

Rugged enough to meet the service requirements of locomotives, loading cranes, steam shovels, etc. Refined enough to install as an auxiliary to large lighting plants in office, railway and factory buildings. Steam curves and tables of performances upon request.

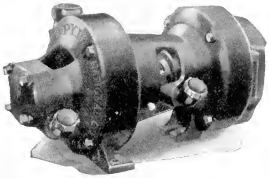
TYPE E-2 TURBO-GENERATOR



Capacity, Watts..	500	Width, Inches.....	14⅜
Voltage	32–110	Length, Inches.....	23½
Height, Inches	13¾	Net Weight, Lbs....	155

Prices and Other Details Upon Request

TYPE K-2 TURBO-GENERATOR

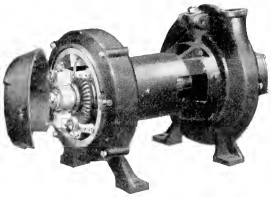


Capacity, Watts.....	500	Width, Inches.....	11⅝
Voltage	32	Length, Inches.....	22
Height, Inches.....	11¾	Net Weight, Lbs.	124

Prices and Other Details Upon Request

PYLE-NATIONAL TURBO-GENERATORS

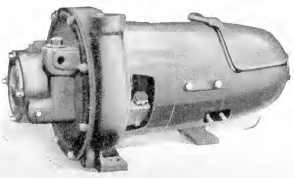
TYPE E-S TURBO-GENERATOR



Capacity, Watts	1500	Width, Inches.....	16½
Voltage	32–220	Length, Inches....	30
Height, Inches....	18½	Net Weight, Lbs.	275

Prices and Other Details Upon Request

TYPE M TURBO-GENERATOR

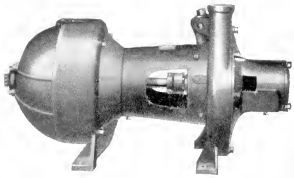


Direct Current

Capacity, K. W..	3 to 7½	Length, Inches.....	39
Voltage.....	32–220	Net Weight, Lbs. (3,	
Height, Inches....	19	4 and 5 K. W.).....	500
Width, Inches....	20¾	Wt., Lbs. (7½ K.W.)	640

Prices and Other Details Upon Request

TYPE T TURBO-GENERATOR

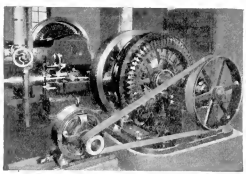


Direct Current

Capacity, K.W.....	2	Width, Inches.....	16½
Voltage	32–220	Length, Inches.....	34¼
Height, Inches....	18½	Net Weight, Lbs.	350

Prices and Other Details Upon Request

WESTINGHOUSE GENERATORS
TYPE E ENGINE-DRIVEN ALTERNATING CURRENT GENERATORS



Two 50 Kv-a., Type E Steam Engine Driven Units with Belted Exciters

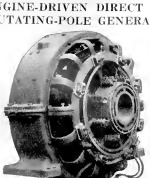
The generator proposition is one that cannot well be listed in a general catalog. We therefore have illustrated on this page some of the most commonly used machines. These will give an idea of the quality of Westinghouse generators, but should not be understood to represent the complete line. We can furnish all types of direct current and alternating current generators for all services, capacities, voltages and frequencies. Write us your specifications. The expert engineering force of the Westinghouse Electric & Manufacturing Company is at our service to handle your specifications and to enable us to give you prompt service.

TYPE E—2 AND 3 PHASE

Two or three phase. 240, 480, 600 and 2400 volts, 60 cycles. 45 to 1650 Kv-a. All standard engine speeds.

This is the companion line to the type G belted. In addition to engine-driven, these machines can be furnished with base bearings and shaft for coupled type or belt driven for special application. Rugged in construction and built to last.

TYPE Q ENGINE-DRIVEN DIRECT CURRENT, COMMUTATING-POLE GENERATORS

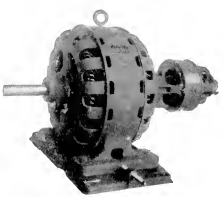


300 Kw., 600 Volt Type Q Generator Commutator End Showing Brush Gear and Terminals

This line of direct current generators has been designed along the most modern lines with commutating-poles. The result is a machine that is cool, will stand overloads of an unusual size and duration with sparkless commutation without any shifting of the brushes.

Built in all the usual ratings from 25 kilowatts up to 1000 kilowatts with speeds to match standard engine practice and 125, 250, 275 and 600 watts. Two wire and three wire.

WESTINGHOUSE GENERATORS
TYPE G BELT-DRIVEN ALTERNATING CURRENT GENERATORS



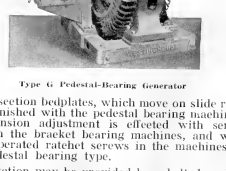
75 Kv-a., Bracket-Type Type G Generator with Direct Connected Exciter

In these belted generators built in sizes from 37½ Kv-a. up to 500 Kv-a., small central stations and industrial plants will find a line of generators especially well adapted for their requirements. They are highly efficient at all loads, well ventilated, simple in electrical and mechanical construction, economical to operate and maintain. Single, two or three phase, 240, 480, 600 or 2400 volts at 60 cycles.

The stator frames are of cast iron of rugged cross-section. Interior transverse ribs strengthen the frame and support the laminations. The laminations are of soft steel punchings, thoroughly japanned.

The field is built of a laminated steel spider securely riveted and mounted on a generously proportioned steel shaft, which also carries the collector rings.

Generators up to and including 125 Kv-a., continuous rating have bracket type supports for the shaft and bearings. Larger generators have pedestal type bearings. The bearings are self-oiling and are generously proportioned. These bearings are guaranteed to run without leaking oil. Covered openings in the upper shell of the bearing afford facilities for inspection.

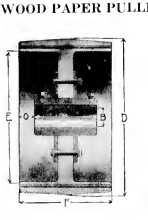


Type G Pedestal-Bearing Generator

Box section bedplates, which move on slide rails are furnished with the pedestal bearing machines. Belt tension adjustment is effected with screw bolts in the bracket bearing machines, and with lever-operated ratchet screws in the machines of the pedestal bearing type.

Exeitation may be provided by a belted exciter for which suitable shaft extension for driving pulley is provided, or by a direct connected exciter when preferred. Standard exeitation is 125 volts.

ROCKWOOD PAPER PULLEYS



For use on motors, generators, board drop hammers and all high grade belted machinery. Should be used where the highest belt efficiency is to be maintained.

The high coefficient of friction of Rockwood paper pulleys may be taken advantage of in one or all of four ways, depending on the conditions of service: First, reduced slippage. Second, decreased belt tension. Third, more power transmitted. Fourth, lower total costs of pulleys and belting.

Rockwood paper pulleys will transmit power with more uniformity than any other pulley. There being minimum slippage of the belt, wear is greatly decreased and the item of belts in the expense account will be materially reduced.

Rockwood paper pulleys may be relied upon to transmit all the power a belt will carry, without a tightencr, the belt, not the pulley being the limit. There being no shrinkage strains as in cast iron or numerous pieces as in wood pulleys. They may be run at very high rates of speed with safety. They are full one-half lighter than similar cast iron pulleys, permitting the use of lighter shafting and hangers. Being non-breakable, they have a low freight classification, and on account of their light weight, cost of transportation is small.

In determining the size pulley required the following formula can be used: Multiply the diameter of the driven pulley by its revolutions per minute, and divide by the number of revolutions of the driver.

HOW TO ORDER ROCKWOOD PAPER PULLEYS

When ordering specify:

1—Number of pulleys wanted.

2—Diameter (D).

3—Total width of face (F).

4—Width of belt.

5—Exact bore or shaft diameter (B).

6—Width of keyway.

7—Depth of keyway in pulley.

8—Length of hub.

9—Distance from end of hub to edge of rim (O).

10—Kind of face—whether crown, straight, double crown or combination.

ROCKWOOD PAPER PULLEYS

PRICES OF ROCKWOOD PULLEYS

Extra heavy construction for belts over 12 inches wide.

Prices of larger sizes on application, made in all face widths and up to 72 inch diameter.

Diam.	Total Face Width 2	3	4	5	6	7	8	9
2	$2.00	$2.05	$2.10	$2.20	$2.35	.....	.....	.....
2½	2.05	2.10	2.15	2.25	2.40	.....	.....	.....
3	2.10	2.15	2.20	2.30	2.45	$2.65	.....	.....
3½	2.15	2.20	2.25	2.35	2.50	2.70	$2.95	.....
4	2.20	2.25	2.30	2.40	2.55	2.75	3.00	.....
4½	2.25	2.30	2.35	2.45	2.60	2.80	3.05	$3.35
5	2.30	2.35	2.40	2.50	2.65	2.85	3.10	3.40
5½	2.35	2.40	2.45	2.55	2.70	2.90	3.15	3.45
6	.....	3.05	3.15	3.25	3.45	3.70	4.00	4.40
7	.....	3.20	3.25	3.40	3.55	3.80	4.15	4.50
8	.....	3.40	3.45	3.55	3.75	4.00	4.30	4.70
9	.....	3.55	3.65	3.75	3.95	4.20	4.50	4.90
10	.....	3.75	3.80	3.95	4.15	4.40	4.70	5.05
11	.....	4.00	4.15	4.30	4.55	4.90	5.25	5.70
12	.....	4.25	4.45	4.70	5.00	5.40	5.80	6.30
13	.....	4.50	4.75	5.05	5.45	5.90	6.40	6.95
14	.....	4.75	5.00	5.30	5.70	6.10	6.60	7.20
15	.....	5.00	5.30	5.70	6.10	6.60	7.20	7.80
16	.....	5.30	5.70	6.10	6.60	7.20	7.80	8.50
17	.....	5.65	6.05	6.55	7.10	7.75	8.45	9.20
18	.....	5.95	6.45	7.00	7.60	8.30	9.05	9.90
19	.....	.....	6.75	7.35	7.95	8.65	9.10	10.20
20	.....	.....	7.15	7.75	8.45	9.20	10.00	10.90
21	.....	.....	7.55	8.25	9.00	9.80	10.70	11.60
22	.....	.....	8.00	8.75	9.55	10.45	11.40	12.40
23	.....	.....	8.45	9.25	10.10	11.05	12.05	13.10
24	.....	.....	8.80	9.60	10.50	11.45	12.45	13.50
25	.....	.....	9.25	10.10	11.05	12.05	13.10	14.25
26	.....	.....	9.75	10.70	11.70	12.45	13.90	15.05
27	.....	.....	10.25	11.25	12.30	13.45	14.60	15.90
28	.....	.....	.....	11.80	12.95	14.10	15.40	16.70

Diam.	Total Face Width 10	11	12	13	14	15	16	17
5	3.75	.....	.....	.....	.....	.....	.....	.....
5½	3.80	.....	.....	.....	.....	.....	.....	.....
6	4.80	5.30	.....	.....	.....	.....	.....	.....
7	4.95	5.45	6.00	.....	.....	.....	.....	.....
8	5.10	5.60	6.20	6.90	.....	.....	.....	.....
9	5.30	5.80	6.40	7.50	.....	.....	.....	.....
10	5.50	6.00	6.55	8.10	9.45	10.35	11.35	.....
11	6.20	6.75	7.40	8.70	10.55	11.55	12.60	13.75
12	6.90	7.50	8.20	9.30	11.70	12.75	13.85	15.10
13	7.55	8.25	9.00	9.90	12.80	13.95	15.20	16.45
14	7.80	8.50	9.25	10.50	13.15	14.25	15.50	16.75
15	8.50	9.25	10.05	11.20	14.30	15.45	16.75	18.10
16	9.25	10.05	10.95	11.90	15.50	16.75	18.05	19.50
17	10.00	10.90	11.80	12.80	16.70	18.00	19.45	20.95
18	10.75	11.70	12.70	13.75	17.90	19.30	20.75	22.35
19	11.05	12.00	13.00	14.05	18.25	19.65	21.15	22.75
20	11.85	12.80	13.90	15.00	19.45	20.95	22.50	24.15
21	12.60	13.70	14.80	16.00	20.70	22.30	23.95	25.65
22	13.45	14.55	15.75	17.00	21.95	23.65	25.30	27.15
23	14.25	15.45	16.70	18.00	23.30	25.00	26.75	28.65
24	14.60	15.80	17.05	18.40	23.75	25.45	27.25	29.10
25	15.45	16.70	18.00	19.40	24.95	26.80	28.70	30.60
26	16.30	17.60	19.00	20.45	26.35	28.20	30.10	32.20
27	17.20	18.55	20.00	21.50	27.65	29.65	31.70	33.75
28	18.05	19.50	21.00	22.55	29.05	31.05	33.10	35.35

In determining the size pulley required the following formula can be used: Multiply the diameter of the driven pulley by its revolutions per minute, and divide by the number of revolutions of the driver.

LEATHER BELT FOR MOTOR DRIVE

"TURTLE" MOTOR BELTING

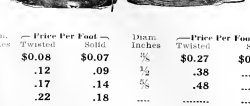
"Turtle" motor belting, strictly first quality, center stock, made in singles and doubles, adapted particularly for use on motors, where belting is operated over comparatively small pulleys.

It is made to use where there is dampness and water, and for exposure to climatic conditions and other agencies which are destructive to regular cemented belting. We highly recommend this for motor drives.

LEATHER BELTS

Width Inches	Price Per Foot—Single	Double	Width Inches	Price Per Foot—Single	Double
½	$0.12	$0.24	2¾	$0.66	$1.20
⅝	.15	.30	3	.72	1.32
¾	.18	.36	3¼	.78	1.44
⅞	.21	.42	3½	.84	1.56
1	.24	.48	3¾	.90	1.68
1¼	.30	.60	4	.96	1.80
1½	.36	.72	4½	1.08	1.92
1¾	.42	.84	5	1.20	2.16
2	.48	.96	5½	1.32	2.40
2¼	.54	1.08	6	1.44	2.88
2½	.60	1.20	..	.....	.....

ROUND BELTS



Diam. Inches	Price Per Foot—Twisted	Solid	Diam. Inches	Price Per Foot—Twisted	Solid
⅛	$0.08	$0.07	⅝	$0.27	$0.24
⅜	.12	.09	½	.38	.....
¼	.17	.14	⅝	.48	.....
⅜	.22	.18	....	.....	.....

ROUND BRAIDED BELTS

Diam. Inches	Price Per Foot	Diam. Inches	Price Per Foot
⅜	$0.27	⅝	$0.48
½	.38	....	.....

Complete listings of all sizes on request.

RUBBER BELT FOR MOTOR DRIVE

HIGH SPEED BELTING

"Sensation" high speed belting. This belting is especially adapted for motor, fan or other high-speed drives where small pulleys are used. It is stronger than the ordinary rubber belt, a 4-ply "Sensation" being 50 per cent stronger than a high-speed leather belt.

Due to its construction, the troublesome feature of stretching is practically eliminated and therefore saves the time of taking it up. On account of its particular construction it holds belt fasteners more securely than other belts. By reason of the compactness of the duck and nature of rubber used, better pulley contact is secured than with other rubber belts with friction surface. Therefore, greater power is developed and the possibility of running off pulleys is reduced. Its construction permits of quarter turn drives, due to the friction, rendering it unlikely to run off pulleys even with intermittent loads.

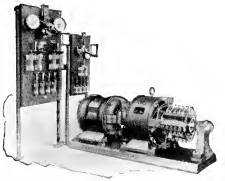
If a rubber belt is to be used for motor or high-speed drives we recommend "Sensation."

RUBBER BELTING

Size Inches	Price Per Foot—2-Ply	3-Ply	4-Ply	5-Ply	6-Ply
1	$0.18	$0.20	$0.24	.....	.....
1¼	.23	.26	.30	.....	.....
1½	.27	.31	.36	$0.45	.....
1¾	.32	.36	.42	.53	.....
2	.34	.39	.46	.58	$0.69
2½	.42	.48	.56	.70	.84
3	.48	.55	.65	.81	.98
3½	.57	.65	.76	.95	1.14
4	.61	.70	.82	1.03	1.23
4½	....	.78	.92	1.15	1.38
5	....	.87	1.02	1.28	1.53
6	....	1.04	1.22	1.53	1.83
7	....	1.22	1.43	1.79	2.15
8	....	1.31	1.54	1.93	2.31
9	....	.....	1.72	2.16	2.60
10	....	.....	1.92	2.40	2.88

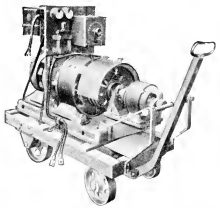
Complete listings of all sizes on request.

WESTINGHOUSE ELECTRIC ARC-WELDING MOTOR GENERATORS



300 Ampere Multiple Operator Unit with Class I Panel and Type A Outlet

Multiple operator units are used for carbon electrode welding or for metallic electrode welding. The complete equipment consists of motor generator, welders' tools, generator control panel and necessary outlet panel. The type E portable panel provides for current values varying from 15 to 225 amperes. Complete information on the generator control and stationary outlet panels upon request.



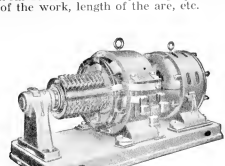
175 Ampere, Single Operator, A. C.-D. C. Motor Generator, Portable Type

The equipment supplies current for one operator varying from 90 to 225 amperes. This rating equipped with A. C. or D. C. motor drive, according to characteristics of supply circuit.

Two processes of arc welding are in general use—the metallic electrode and the carbon or graphite electrode process. In general the graphite electrode process is used for heavy cutting or for rapid deposition of metal. The metallic electrode process is best where strength and good physical characteristics of the deposited metal are essential. Metallic electrode welding requires in general current values ranging from 50 to 225 amperes and graphite electrode welding requires currents varying from 200 amperes to 800 amperes.

Capacities of Westinghouse arc welding motor generators range from the 175 ampere single operator equipment, for stationary or portable service, to the 1,000 ampere equipment for supplying several operators using either the metallic electrode or the graphite electrode process. Larger sets can be built on special order.

Direct current is best for electric arc welding on account of the fundamental arc characteristics and phenomena involved in the deposition of metal through an electric arc. The voltage of the arc will vary from 18 to 22 volts depending upon the character of the work, length of the arc, etc.



1,000 Ampere A. C.-D. C. Welding Motor Generator Set

A complete set of operators' welding accessories is shipped with each welding equipment.

Special motor generator equipments have been developed for street railway service. The motor is designed to operate over widely varying trolley voltage, approximately 350 to 650 volts.

Where the work is light and readily transported to the welding shop, a central welding plant, with multiple operator equipment often shows advantages. If the work is scattered over a large area, or the maintenance of heavy machinery or equipment predominates, the portable type single operator equipment should be used. The portable equipments are entirely self-contained, and all that is necessary to start work is to connect to the available source of power supply.

Generators for belted service are standard in capacities corresponding to the capacities of the various motor generators. Service requirements often demand an engine driven unit which may be used in places where no source of electric supply is available. These generators may be assembled with gas, oil or steam engines, and used in places where no source of electric power is available.

Standard Ratings

Single Operator Unit—175 amperes A. C. and D. C., motor drive.

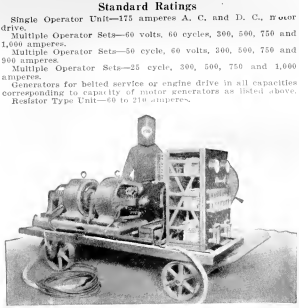
Multiple Operator Sets—60 volts, 60 cycles, 300, 500, 750 and 1,000 amperes.

Multiple Operator Sets—50 cycle, 60 volts, 300, 500, 750 and 900 amperes.

Multiple Operator Sets—25 cycle, 300, 500, 750 and 1,000 amperes.

Generators for belted service or engine drive in all capacities corresponding to capacity of motor generators as listed above.

Resistor Type Unit—60 to 210 amperes.



300 Ampere Portable Outfit, D. C. Motor Drive

300 and 500 ampere multiple operator equipments are often used as portable equipments. Panel shown above supplies control for two welding circuits, each having a range of values from 15 to 225 amperes.

C-H MAGNETIC CLUTCHES

FOR CONNECTING AND DISCONNECTING MACHINERY FROM ITS SOURCE OF POWER

One member of the C-H magnetic clutch contains a magnet coil which, when energized by a direct current, pulls the other member into contact with a friction surface on its outer circumference, and the two parts then rotate as a unit. When no current is flowing through the coil, the two members stand a short distance apart and a positive running clearance is provided.

The outstanding features of the C-H clutch are:

Direct Magnet Action—Compact structure with no toggles, levers, etc., to wear or get out of order.

Ease of Operation—Only necessary to close or open a switch to engage or disengage the clutch. This switch may be operated either manually or automatically.

Smooth Acceleration—The friction surfaces engage gradually, there being sufficient slip to secure a smooth start.

No End Thrust—No end or side thrust is transmitted to the shafts or connected machinery.

Fixed Capacity—For each size of clutch there is a fixed capacity depending on the known pull of the magnet. The clutch capacity is not affected by centrifugal forces; therefore it may be run at high speeds when required.

Ratings of C-H Magnetic Clutches

Size	Ultimate H.P. 100 R.P.M.	Pull Out Torque Lb.Ft.	—Amperes— 115V.	230V.	Max. R.P.M.	Net Wt.Lb.	Shpg Wt.Lb
7	.7	35	.4	.2	3540	70	85
10	1.7	90	1.0	.5	2840	90	110
12	2.8	150	1.0	.5	2380	115	140
14	4.7	250	1.2	.7	2040	155	185
16	13.9	732	1.6	.74	1790	235	285
20	27	1430	2.0	1.0	1420	350	430
24	47	2460	2.4	1.4	1190	510	640
28	75	3920	3.2	1.8	1030	700	880
32	111	5840	3.2	1.8	900	1080	1360
36	158	8320	4.8	2.6	800	1400	1760
40	198	10420	4.4	2.4	710	2000	2500
44	290	15200	5.2	2.7	650	2600	3200
48	376	19720	5.5	2.9	600	3300	4000
54	535	28100	11.4	5.8	530	4000	4800
60	735	38600	14.0	7.3	480	4800	5800
66	980	51400	14.1	7.3	425	6000	7000
72	1270	66600	17.3	9.1	395	6800	8000
78	2170	114000	19.3	10.4	365	8200	9700

C-H MAGNETIC CLUTCHES

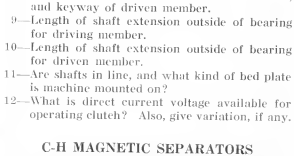
ORDERING DATA

When sending in an inquiry or when entering an order for a cluteh, please supply the following information:

1—Normal horsepower to be transmitted.
2—Ultimate peak horsepower which may be encountered at any time.
3—Nature and description of load. If possible, send a drawing of the machine on which the clutch will be used.
4—Frequency of starting.
5—Speed of clutch shaft—R. P. M.
6—Are there any fly wheels or high inertia parts to be started? If so, give weight, speed and dimensions.
7—Shaft diameter, in thousandths of an inch, and keyway of driving member.
8—Shaft diameter, in thousandths of an inch, and keyway of driven member.
9—Length of shaft extension outside of bearing for driving member.
10—Length of shaft extension outside of bearing for driven member.
11—Are shafts in line, and what kind of bed plate is machine mounted on?
12—What is direct current voltage available for operating clutch? Also, give variation, if any.

C-H MAGNETIC SEPARATORS

FOR SEPARATING MAGNETIC FROM NON-MAGNETIC MATERIALS



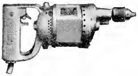
These pulleys consist of a number of steel discs keyed to a shaft, an electromagnetic winding being placed between alternate discs. The magnetizing coils are wound on steel bobbins, which are dowelled to the discs to prevent shifting. The coils are all connected in series and terminal wires brought through a hole in the center of the shaft to a pair of collector rings.

When a direct current is passed through the windings, the pulley is magnetized so that it attracts any iron or steel in the material on the belt and carries it around until the belt leaves the pulley on the under side. The non-magnetic material, of course, drops directly from the end of the conveyor and is kept separate from the magnetic material by a partition located at the proper point beneath the pulley.

C-H Magnetic Separators are made with pulley diameters from 12 to 30 inches and widths to accommodate belts from 16 to 60 inches wide.

BLACK & DECKER PORTABLE ELECTRIC DRILLS

QUARTER INCH



Very light in weight, air-cooled and identical in construction with the larger Black & Decker drills.

Drill complete with three-jaw chuck for straight shank drill bits up to ¼ inch, which is maximum capacity for steel. 7½ feet of duplex electric cable and separable attachment plug.

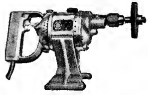
Operates on A. C. or D. C.

Voltage	Capacity in Steel	No Load Speed R. P. M.	Net Wt. Lbs.	Price Each
110	0 to ¼	2000	5	**$28.00**
220	0 to ¼	2000	5	**32.00**
32	0 to ¼	2000	5	**32.00**

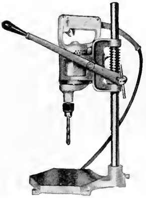
Grinding Outfit

Stand to which the quarter inch drill can be quickly attached. Designed for light grinding. Outlit consisting of stand, arbor and grinding wheel.

Price Extra............**$3.00**



QUARTER INCH BENCH DRILL STAND

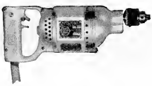


Quarter inch bench drill stand accommodates only Black & Decker ¼ inch drill and No. 1 electric screw driver and socket wrench. This stand can be supplied with adapter for $\frac{5}{16}$ inch drill and No. 2 electric screw driver and socket wrench at extra cost of **$2.00.**

Quarter Inch Bench Drill Stand — Price Each **$12.00**

FIVE-SIXTEENTHS INCH

More powerful and a trille heavier than the quarter inch size. Spindle speed a little lower to take care of the increased capacity.



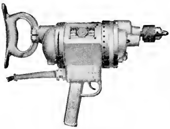
Drill complete with three-jaw chuck for straight shank drill bits up to $\frac{5}{16}$ inch, 15 feet of duplex electric cable and separable attachment plug.

Operates on A. C. or D. C.

Voltage	Capacity in Steel	No Load Speed R. P. M.	Net Wt. Lbs.	Price Each
110	0 to $\frac{5}{16}$	1400	7	**$52.00**
220	0 to $\frac{5}{16}$	1400	7	**56.00**
32	0 to $\frac{5}{16}$	1400	7	**56.00**

BLACK & DECKER PORTABLE ELECTRIC DRILLS

THREE-EIGHTHS INCH



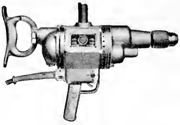
Drill complete with combination spade handle and breast plate, three-jaw chuck for straight shank drill bits up to ⅜ inch, 15 feet of duplex electric cable and separable attachment plug.

Operates on A. C. or D. C.

Voltage	Capacity in Steel	No Load Speed R. P. M.	Net Wt. Lbs.	Price Each
110	0 to ⅜	900	14	**$68.00**
220	0 to ⅜	900	14	**72.00**
32	0 to ⅜	900	14	**72.00**

HALF INCH SPECIAL

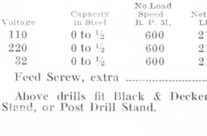
Drill complete with side handle, combination spade handle and breast plate, three-jaw chuck for straight shank drills up to ½ inch, 15 feet or duplex electric cable and separable attachment plug. Operates on alternating current or direct current.



Voltage	Capacity in Steel	No Load Speed R. P. M.	Net Wt. Lbs.	Price Each
110	0 to ½	475	15	**$58.00**
220	0 to ½	475	15	**62.00**
32	0 to ½	475	15	**62.00**

Feed Screw, extra **3.50**

HEAVY DUTY HALF INCH



Drill complete with combination spade handle and breast plate, three-jaw chuck for straight shank drills up to ½ in., 15 feet of duplex electric cable, separable attachment plug, and detachable side handle.

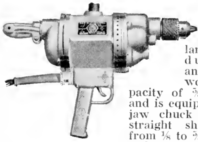
Voltage	Capacity in Steel	No Load Speed R. P. M.	Net Wt. Lbs.	Price Each
110	0 to ½	600	21½	**$78.00**
220	0 to ½	600	21½	**82.00**
32	0 to ½	600	21½	**82.00**

Feed Screw, extra **3.50**

Above drills fit Black & Decker Bench Drill Stand, or Post Drill Stand.

BLACK & DECKER PORTABLE ELECTRIC DRILLS

FIVE-EIGHTHS INCH

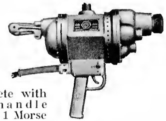


This drill has been designed particularly for heavy duty production and maintenance work. It has a capacity of ⅝ inch in steel and is equipped with three-jaw chuck accommodating straight shank drill bits from ⅛ to ⅝ in.

Operates on A. C. or D. C.

Voltage	Capacity in Steel	No Load Speed R. P. M.	Net Wt. Lbs.	Price Each
110	⅛ to ⅝	475	22	**$84.00**
220	⅛ to ⅝	475	22	**88.00**
32	⅛ to ⅝	475	22	**88.00**
Feed Screw, extra				**3.50**

NINE-SIXTEENTHS INCH

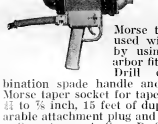


Designed for use with No. 1 Morse taper shank drill bits. Can be used with straight shank bits by using No. 1 Morse taper arbor fitted with ½ inch chuck. Drill complete with combination spade handle and breast plate, No. 1 Morse taper socket for taper shank drill bits $\frac{1}{16}$ to $\frac{9}{16}$ inch, 15 feet of duplex electric cable, separable attachment plug and detachable side handle.

Operates on A. C. or D. C.

Voltage	Capacity in Steel	No Load Speed R. P. M.	Net Wt. Lbs.	Price Each
110	$\frac{1}{16}$ to $\frac{9}{16}$	600	21	**$84.00**
220	$\frac{1}{16}$ to $\frac{9}{16}$	600	21	**88.00**
32	$\frac{1}{16}$ to $\frac{9}{16}$	600	21	**88.00**
Feed Screw, extra				**3.50**
Spindle Sleeve for short taper shank drills				**3.00**

SEVEN-EIGHTHS INCH



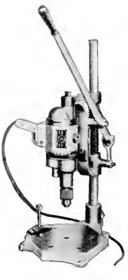
Designed for use with No. 2 Morse taper shank drill bits. Can be used with No. 1 Morse taper shank bits by using No. 1 to No. 2 Morse taper sleeve or can be used with straight shank bits by using No. 2 Morse taper arbor fitted with ½ inch chuck. Drill complete with combination spade handle and breast plate. No. 2 Morse taper socket for taper shank drill bits from $\frac{47}{64}$ to ⅞ inch, 15 feet of duplex electric cable, separable attachment plug and detachable side handle.

Operates on A. C. or D. C.

Voltage	Drilling Capacity in Steel	Reaming Capacity in Steel	No Load Speed R.P.M.	Net Wt. Lbs.	Price Each
110	$\frac{1}{16}$ to ⅞	¼ to $\frac{7}{16}$	350	25	**$98.00**
220	$\frac{1}{16}$ to ⅞	¼ to $\frac{7}{16}$	350	25	**102.00**
32	$\frac{1}{16}$ to ⅞	¼ to $\frac{7}{16}$	350	25	**102.00**
Feed Screw, extra					**3.50**
250 Speed, extra					**2.50**
Spindle Sleeve for short shank drills					**3.50**

BLACK & DECKER DRILL STANDS FOR PORTABLE ELECTRIC DRILLS

BENCH DRILL STAND



Price Does Not Include Electric Drill

The Black & Decker Bench Drill Stand makes a rigid, serviceable Drill Press out of a Black & Decker Portable Electric Drill in a few seconds. It takes ⅜, ½, $\frac{9}{16}$, ⅝ and ⅞ in. Black & Decker Portable Electrie Drills.

If you already have a Black & Decker Portable Electric Drill and desire the stand only, be sure to specify the size and type shown on name-plate of your Drill so that proper adapter may be supplied with stand.

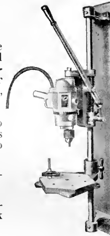
Net weight of Stand without Drill, 50 lbs.

Bench Drill Stand without Portable Electric Drill, Price Each........ **$28.00**

When Bench Drill Stand complete with Portable Electric Drill is desired, this should be specified, and price of Portable Electric Drill added to price of Stand.

POST DRILL STAND

Price Does Not Include Electric Drill



Essentially the same as the Black & Decker Bench Drill Stand. It takes the following sizes of Black & Decker Portable Electrie Drills—⅜, ½, $\frac{9}{16}$, ⅝ and ⅞ in.

Particularly adapted to shops where bench space is limited, as it can be bolted to post or wall.

Net weight of Stand without Drill, 75 lbs.

Each outfit shipped lag-screwed to board 1¾x5½x 52 ins.

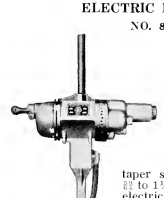
When Post Drill Stand complete with Portable Electric Drill is desired, this should be specified, and price of Portable Electric Drill added to price of stand.

Post Drill Stand without Portable Electric Drill—Price Each........ **$32.00**

Standard brackets hold vertical column 5 in. from post or wall. 8 in. brackets can be supplied if specified, at **$1.50** extra.

BLACK & DECKER PORTABLE ELECTRIC DRILLS

NO. 8



Designed for No. 4 Morse taper shank drill bits. Can be used with No. 3 Morse taper shank bits by using No. 3 to No. 4 Morse taper sleeve.

Drill complete with spade handle, No. 4 Morse taper removable socket for taper shank drill bits from $\frac{3}{64}$ to $1\frac{1}{2}$ in., 15 feet of duplex electric cable, separable attachment plug and detachable side handle. Operates on Alternating or Direct Current.

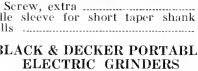
Voltage	Cap. In Steel	Reaming Cap.	No Load Speed	Net Wt. Lbs.	Price Each
110	$\frac{3}{8}$ to $1\frac{1}{2}$	0 to $\frac{1}{2}$	350	58	**$205.00**
220	$\frac{3}{8}$ to $1\frac{1}{2}$	0 to $\frac{1}{2}$	350	58	**200.00**

Feed Screw, extra **8.00**

Spindle sleeve for short taper shank drills **5.00**

BLACK & DECKER PORTABLE ELECTRIC GRINDERS

FOUR TO SIX INCH



Complete with 15 feet of duplex electric cable with attachment plug, grinding wheel and wheel guard except 4-inch grinder, which is supplied without wheel guard.

Sharpen tools; smooth castings and forging ridges and rough spots, smooth welds, shape fittings. With wire-brush wheel, rough tires, remove sand from castings, remove rust and paint from metal surfaces. With rag bufling wheel can be used for all sorts of polishing work.

Four-Inch Grinder, $\frac{1}{3}$ H. P.

Volts	Size of Wheel—Diam.	Face	Size Hole	No load Speed	Price Each
110	4	$\frac{1}{2}$	$\frac{1}{2}$	3500	**$60.00**
220	4	$\frac{1}{2}$	$\frac{1}{2}$	3500	**64.00**
32	4	$\frac{1}{2}$	$\frac{1}{2}$	3500	**64.00**

Length over-all, 14 inches. Net Wt., 7 lbs.

Five-Inch Grinder, $\frac{1}{4}$ H. P.

110	5	$\frac{3}{4}$	$\frac{1}{2}$	3400	**80.00**
220	5	$\frac{3}{4}$	$\frac{1}{2}$	3400	**84.00**
32	5	$\frac{3}{4}$	$\frac{1}{2}$	3400	**84.00**

Length over-all, 22 inches. Net Wt., 15 lbs.

Six-Inch Grinder, $\frac{1}{2}$ H. P.

110	6	1	$\frac{5}{8}$	2900	**90.00**
220	6	1	$\frac{5}{8}$	2900	**94.00**
32	6	1	$\frac{5}{8}$	2900	**94.00**

Length over-all, $23\frac{3}{4}$ inches. Net Wt., 22 lbs.

EXTRA EQUIPMENT

The following extra equipment can be supplied for the 6-inch Portable Electric Grinder only.

Aerial Spring and Eyebolt **$1.00**
Wire-Brush Wheel **2.00**
Rag Buffing Wheel ..... **.50**
Cake of Polishing Compound ..... **.15**

These Grinders all operate on Direct or Alternating Current and on voltages 10% over or under those specified.

BLACK & DECKER ELECTRIC BENCH GRINDERS

SIX INCH ELECTRIC BENCH GRINDER

Not a universal motor. Specify whether required for D. C. or A. C. and if for A. C. specify whether 25, 40, 50 or 60 cycle.

It can be connected to an ordinary electric lamp socket and is shipped complete to run.

Complete as illustrated with two grinding wheels, one coarse and one fine, two wheel guards, two tool rests, electric cable fitted with attachment plug and electric switch.

For Alternating Current Circuits

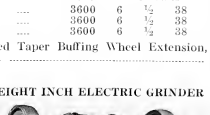
Volts	Cycles	No Load Speed R.P.M.	Size Wheel—Diam.	Face	Net Wt. Lb.	Price Each
110	60	3600	6	$\frac{1}{2}$	38	**$38.00**
110	25–40–50	3600	6	$\frac{1}{2}$	38	**42.00**
220	60	3600	6	$\frac{1}{2}$	38	**42.00**

For Direct Current Circuits

110	....	3600	6	$\frac{1}{2}$	38	**42.00**
220	....	3600	6	$\frac{1}{2}$	38	**42.00**
32	....	3600	6	$\frac{1}{2}$	38	**42.00**

Threaded Taper Bufling Wheel Extension, Extra **3.50**

EIGHT INCH ELECTRIC GRINDER



Not a universal motor. Specify whether required for D. C. or A. C., and if for A. C. specify whether for 25, 40, 50 or 60 cycle.

Bench Grinder complete as illustrated with two 8 inch grinding wheels, 2 wheel guards, 2 adjustable tool rests, toggle switch in base and 5 feet of duplex electric cable.

For Alternating Current Circuits

Volts	Cycles	No Load Speed R.P.M.	Size Wheel—Diam.	Face	Net Wt. Lb.	Price Each
110	60	3600	8	$\frac{3}{4}$	75	**$90.00**
110	25–40–50	3600	8	$\frac{3}{4}$	75	**94.00**
220	60	3600	8	$\frac{3}{4}$	75	**94.00**

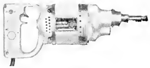
For Direct Current Circuits

110	....	3600	8	$\frac{3}{4}$	75	**94.00**
220	....	3600	8	$\frac{3}{4}$	75	**94.00**

Pedestal, Extra **18.00**

Threaded Taper Bufling Wheel Extension, Extra **5.00**

BLACK & DECKER ELECTRIC SCREW DRIVER AND SOCKET WRENCH



Complete with 15 feet of duplex electric cable with attachment plug and 2 screwdriver bits with centering sleeves.

The No. 1 is capable of driving a No. 14 wood screw 2½ inches long in hardwood. The No. 2 is capable of driving a No. 20 wood screw 4 inches long in hardwood.

These capacities contemplate the use of proper size lead holes.

Operates on Alternating or Direct Current.

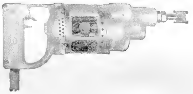
Size No.	Volts	No-load Speed RPM	Net Wt. Lbs.	Price Each
1	110	350	7	**$48.00**
1	220	350	7	**52.00**
1	32	350	7	**52.00**
2	110	350	8½	**68.00**
2	220	350	8½	**72.00**
2	32	350	8½	**72.00**

Either Screw Driver can also be supplied with speeds of 700 R.P.M. or 1000 R.P.M. as specified, at extra charge of $2.50.

EXTRA EQUIPMENT

Extra Screwdriver Bits without centering sleeve, each **$0.50**
Extra Screwdriver Bits with centering sleeve, each **1.00**
Solid Socket Wrenches, each **1.00**
Adapters to fit Walden-Worcester or Mossberg Socket Wrenches, each **1.00**
For Screw Driver with special spindle (no clutch) fitted with ⅜" 3 jaw chuck for drilling work requiring very slow speed, add following to prices shown above........ **2.50**

BLACK & DECKER ELECTRIC VALVE GRINDER



The spindle oscillates back and forth with a long steady sweep similar to the motion used in grinding by hand, but very much faster.

Electric Valve Grinder is complete with 7½ feet of duplex electric cable, separable attachment plug, detachable bits, box of grinding compound and lift spring. Operates on A. C. or D. C.

Mfrs. No.	Volts	Net Wt. Lbs.	Price Each
1	110	6	**$34.00**
1	220	6	**38.00**
1	32	6	**38.00**
2	110	9	**64.00**
2	220	9	**68.00**
2	32	9	**68.00**

Blank bits which can be filed to fit special valves, **$0.60** ½ dozen.

PYRAMID BRUSH ASSORTMENT

NO. 50

For Fractional Horse Power Motors

No. 50 Brush Assortment, Complete.......... **$12.00**

Replacement Brushes For

Vacuum Cleaners	Washing Machines
Fans	Sewing Machines
Vibrators	Dictaphones
Electric Phonographs	Electric Drills
Mangles	Heat Regulators
Pumps	Cash Registers

and Fractional Horse Power Motors of all kinds.

The No. 50 Pyramid Brush Assortment provides correct brush and spring replacements for the majority of fractional horse power motors on electric fans, vacuum cleaners, washing machines etc.

Contains 204 brushes of seventeen different types and sizes. 75 springs of two different sizes Brushes have turned necks to fit springs. Springs are made of the best grade phosphor bronze.

Replacements

For convenience in replenishing the No. 50 Assortment, individual items of brushes and springs may be purchased in unit package quantities at the prices shown below. In no case will orders be accepted for less than unit package quantities, nor will unit packages be broken.

Brushes

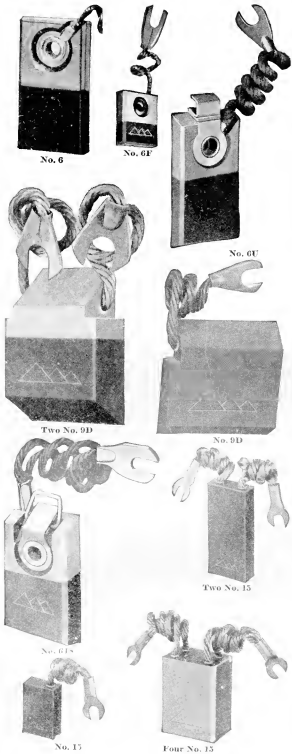
Mfrs. No.	Size and Description	Unit Pkg. Qty.	Unit Pkg Pric
1	$\frac{11}{16}$x$\frac{5}{32}$x$\frac{5}{32}$—Turned Neck	12	**$0.46**
2	1x.251x.251—Turned Neck	12	**.26**
3	1.281x.313x.313—Turned Neck....	12	**.70**
4	1x.303x.250—Turned Neck	12	**.38**
5	.243 dia. x ¾ lg.—Turned Neck....	12	**.54**
6	1¼x.255x.255—Turned Neck........	12	**.86**
7	.308 dia. x 1¼ lg..........	12	**.30**
8	⅝x.156x.156—Turned Neck..........	12	**.32**
9	.300 dia. x 1 lg.—Turned Neck	12	**1.44**
10	1$\frac{1}{16}$x.306x.250—Convexed Edge....	12	**.96**
11	$\frac{15}{16}$x¼x¼—Turned Neck	12	**1.04**
12	$\frac{3}{16}$ dia. x $\frac{13}{16}$ lg.—Turned Neck........	12	**.30**
13	¾x¼x¼..........	12	**.26**
14	¾x¼x¼—Turned Neck	12	**.48**
15	$\frac{27}{32}$x.281x.218—Turned Neck	12	**.62**
16	$\frac{9}{16}$x.156x.156—Turned Neck..........	12	**.50**
17	$\frac{9}{16}$x.178x.178—Corners Chamfered	12	**.18**
	Springs		
18	¼x1¼	25	**.80**
19	⅛x1¼	50	**1.60**

In ordering additional brushes and springs be sure to specify Mfrs. No., Size and Description.

NATIONAL CARBON BRUSHES

SHUNTS AND BEVELS

This page of illustrations is for your guidance in ordering brushes. The shunts should always be ordered by number. Specify length of shunt required and dimensions of brush. Plain brushes without shunts or bevels will be shipped unless ordered with same.



NATIONAL CARBON BRUSHES

PHYSICAL CHARACTERISTICS OF BRUSHES

Each grade of brush is described by certain physical characteristics. These characteristics are determined by careful tests in the laboratory, and, if used properly, will aid materially in selecting the grade of brush for a given service. The characteristics are named and defined briefly below in the order in which they are generally found in the descriptive matter under each grade of brush.

Specific Resistance.—This is the Resistance in ohms from one face to the opposite face of the cube of the given material whose sides are one inch long.

This factor may be used in obtaining the ohmic resistance of any brush, as follows: Let R=the total ohmic resistance of a brush, K= the specific resistance in ohms per inch cube, L=the length of the brush in inches, W=the width of the brush in inches and T=the thickness of the brush in inches. Then

$$R = \frac{K \times L}{W \times T}$$

Carrying Capacity.—This is the load current density in amperes per square inch of cross section that a brush can carry without serious heating. In setting a figure for carrying capacity it is necessary to consider not only the heating effect of the load current but also that of the short circuit currents and that produced by friction and contact resistance. The value given represents the load current density which the brush will carry without distress under normal operating conditions on a machine of average design. Due to the relatively large allowance which is made for the heating effect of short circuit currents, it is often possible to exceed the rated carrying capacity on machines possessing very good commutating characteristics. On machines operating intermittently and for short periods, such as crane and elevator motors, the normal rated carrying capacity may be exceeded by as much as 50 to 75 per cent.

If the load in amperes carried by any machine is known the current density in amperes per square inch of brush cross section can be calculated by the use of the following formula:

$$\text{Current density in amperes per square inch} = \frac{I}{\frac{1}{2} N \times W \times T}$$

I = load on machine in amperes.
N = total number of brushes on machine.
W = Width of brush in inches.
T = Thickness of brush in inches.

Peripheral Speed.—This is the surface speed of the commutator expressed in feet per minute. Suppose a definite point on the commutator surface is chosen. The number of feet per minute traveled by this point, as the commutator revolves, is expressed as peripheral speed. The figure given represents the maximum for which a given grade is recommended. Following is a method for calculating the peripheral speed of a commutator. When D is the diameter of the commutator in inches, and N is the speed of the commutator in revolutions per minute:

$$\text{Peripheral speed (feet per min)} = \frac{D \times 3.1416 \times N}{12}$$

For an approximate value it is sufficient to use

$$\frac{D \times N}{4}$$

NATIONAL CARBON BRUSHES

PHYSICAL CHARACTERISTICS OF BRUSHES

Hardness.—The hardness is taken with an instrument called a scleroscope, in which a steel weight falls from a constant height upon the material, the hardness of which is to be measured, and then rebounds up a graduated scale, the height of the rebound being recorded by the operator. There is no absolute unit of hardness, and the scleroscope readings obtainecl are relative figures which are useful only for the purpose of comparison.

The variation in the degree of finish of the brush surface often causes considerable difference in the scleroscope readings. Therefore too much importance must not be attached to the hardness. It must be remembered that scleroscope readings are relative figures only and that a brush testing 60 cannot be said to be twice as hard as a brush testing 30, or three times as hard as one testing 20. The following table gives a comparison between the sclerosope figures and the degree of hardness:

Scleroscope	Degree
0.....15	Very soft
16.....30	Soft
31.....45	Medium
46.....60	Hard
61 or over	Very Hard

Abrasiveness.—The hardness of a brush is often considered as an index of its abrasive qualities, but in reality these two properties are entirely distinct and should not be confused. A very hard brush may possess very little polishing action on a commutator (example grade 400 hardness 81); while a much softer grade may be highly abrasive (example grade 304 hardness 40). In other words hardness is a question of manufacturing process and abrasiveness one of materials used.

The general classification of our standard grades with respect to abrasiveness given in the following table was made up from our general experience and observation of these grades in normal service under the conditions noted.

Abrasive.—A brush capable of keeping down mica on slow speed commutators operating under severe conditions—example grade 304.

Medium Abrasive.—Suitable for operation on medium speed commutators (up to 3500 ft. per min.) under normal to heavy operating conditions. (Example—grades 206-702-808-407.)

Slightly Abrasive.—For medium to high speed commutators. Example—grades 840-812-619.

Polishing.—Brushes suitable for operation on medium and high speed commutators where commutating conditions are good and for use on slotted commutators where service is hard and there is a tendency for smut to form on the commutator or ring. (Example—grades 203-401-414-621-634.)

Slight Polishing—Brushes which are seldom used on anything but slotted commutators. (Example—grades 400-402-258-623.)

Non-Abrasive.—The brushes placed in this class have the wearing and polishing effect of brush on a commutator reduced to an absolute minimum. This means that the commutator will take a fine glossy chocolate color and remain in this condition indefinitely. But to obtain this effect commutation must be good. (Example—grades 255-259.)

NATIONAL CARBON BRUSHES

PHYSICAL CHARACTERISTICS OF BRUSHES

Strength.—The figures for transverse strength are determined by a breaking test. This is made on specimens of uniform size in a standard testing machine. The test piece is supported on two knife edges and a third knife edge presses on the mid point; a weight moved along a graduated lever arm increases the pressure until the piece breaks. This force is computed in pounds per square inch.

Contact Drop

The voltage lost between the face of the brush and the commutator is designated as contact drop. No two grades of brushes have the same contact drop although their physical properties may be very similar. Because of the fact that this property of the carbon brush is so important in the successful application of brushes to dynamo electric machinery, the National Carbon Company has spent a great deal of time and effort in trying to determine values of contact drop on its standard grades which would be of some commercial use. This was found to be a very difficult thing to do. It is a well known fact that atmospheric conditions have a very marked effect on the contact drop. In order to get comparable values for contact drop it was determined to measure the voltage drop of all the grades under conditions as nearly similar as possible.

Observations were not recorded until the brushes had run entirely to face. This usually took about three days. After this condition was reached readings of contact drop were taken at regular and frequent intervals for a period of time. This was repeated a number of times with different samples of each grade so that an average value for the contact drop of each grade was obtained.

The following figures were obtained under the above mentioned conditions. It must be emphasized that these results were secured under almost ideal conditions so that it would be next to impossible to check these results on commercial machines. The values given are, therefore, not absolute but comparable only with each other and could be duplicated only under identical operating conditions. Even the brush holding device would have to be identical, since it has been found that the type of holder has a pronounced effect on the ability of the brush to cling to the commutator and consequently on the voltage drop.

CONTACT DROP—STANDARD BRUSH GRADES

As determined by the method and conditions as given above: Speed, 700 R.P.M.; brush pressure, 3 pounds per square inch; diameter of commutator, 2¼ inches; current density, 100 amperes per square inch.

Carbon and Graphite Brushes

Grade	Average Volts Per Brush	Grade	Average Volts Per Brush
634	.29	402	.81
840	.39	304	.81
623	.45	255	.86
812	.54	203	.86
808	.56	258	.90
306	.61	259	.92
619	.62	400	.97
405	.71	414	1.01
407	.73	702	1.11
401	.80	.....	.....

Grades 811 and 833 have been left out of the above list because they are made only in small sizes. The above figures do not hold good for fan motor brushes.

NATIONAL CARBON BRUSHES

PHYSICAL CHARACTERISTICS OF BRUSHES

Metal Graphite Brushes

Grade	Average Volts Per Brush	Grade	Average Volts Per Brush
543	.02	589	.05
Ringsdorff ET 10	.02	566	.07
539	.03	525	.31

Since values of contact drop are so variable and are largely comparative, we classify the contact drop for General conditions as follows:

Very High—Above .9 volts per brush. Medium —.7 volts to .8 volts per brush. High—.8 volts to .9 volts per brush. Low—.5 to .7 volts per brush. Very Low—Below .5 volts per brush.

Coefficient of Friction

Practically the same variables enter the determination of the coefficient of friction as those discussed under the head of contact drop, and it is about as difficult a thing to measure and get uniform and consistent results. It was found that under certain conditions the brush contact on the commutator is so intimate that a partial vacuum is formed underneath the brush. This partial vacuum has the effect of increasing the brush pressure which changes the coefficient of friction. All brushes are not affected alike in this respect, some showing greater vacuum effects than others. In general the coefficient of friction which is the ratio of frictional force to normal pressure decreases with an increase of pressure. In the case of some grades the variation of the coefficient of friction with brush pressure is very much greater than with others. It is always desirable, however, to hold the spring tension as light as possible, consistent with good commutation, so that the heat losses due to friction will be as low as possihle.

For purposes of comparison, we classify he coefficient of friction as:

High—Above .3. Medium—.225 to .3. Low—Below .225. These values being taken under conditions similar to those explained under the suhject "Contact Drop."

When the brushes operate in a leading position, care should be taken not to apply a grade which will tend to chatter due to the fact that it operates at its critical angle; that is, an angle at which the brush just floats in the holder, because any slight increase or decrease in the frictional force will throw the brush from one side of the holder to the other. From theoretical considerations it can be demonstrated that the contangent of the angle of inclination of the brush to the commutator is equal to the coefficient of friction when this unstable condition is present. The only remedy is to change the angle of inclination of the brush or to install another brush grade having a different coefficient of friction. The change should preferably be made to a brush having a lower coefficient of friction.

Pressure Recommended.—This is given in pounds per square inch of brush contact surface. This may be determined **approximately** on a machine by means of a small spring balance. Place the hook of the balance under the brushholder spring and pull against the spring, straight away from the brush, until the brush is just free. This weight in pounds, which is the pressure in pounds per brush, divided by the contact surface of the brush in square inches, will give the approximate brush pressure in pounds per square inch.

NATIONAL CARBON BRUSHES

PHYSICAL CHARACTERISTICS OF BRUSHES

As a rule, an increase in brush pressure causes an increase in brush friction, but at the same time, a better contact may be obtained, which gives a lower contact drop. Therefore, in giving a figure for brush pressure, both of these losses must be considered, and the value given must effect a compromise between these two losses. For generators and stationary motors we recommend that this should not be higher than the figures given under each grade, except for special conditions. A good general rule to follow is to use the lowest brush pressure that will give good contact, but very seldom under 1¾ pounds per square inch for stationary machines, except with some graphite brushes, which can be operated at pressure as low as 1¼ pounds per square inch. For Railway service 3½ to 8 pounds per square inch pressure is generally used, depending upon speed of motors and conditions of track. For crane motors, truck motors and similar machines, where vibration is severe, the brush pressure should be about the same as for railway motors.

STANDARD SIZES FOR CARBON BRUSHES

Abstracted from the rules adopted by the Electric Power Club, July 1, 1917.

Also recommended by Committee on Industrial and Domestic Power of the A. I. E. E.

Length of Round and Rectangular Brushes

Up to and including 1¼ inches—Increase by steps of ⅛ inch.

Over 1¼ to 3 inches—Increase by steps of ¼ inch.

Over 3 inches—Increase by steps of ½ inch.

Preference to be given steps of ¼ inch below 1 inch length and ½ inch above 1 inch length.

Width and Diameters

Up to and including ¼ inch—Increase by steps of 1/16 inch.

Over ¼ inch to 2½ inches—Increase by steps of ⅛ inch.

Over 2½ inches—Increase by steps of ¼ inch.

It is recommended that ¼ inch steps be used wherever possible. Diameters of round brushes shall vary by steps of 1/16 inch.

Thickness

Up to and including ¾ inch—Increase by steps of 1/16 inch.

Over ¾ inch—Increase by steps of ⅛ inch.

It is recommended that ⅛ inch steps be used wherever possible above ½ inch thickness.

Length of Shunts

It was agreed to define the length of a shunt as the distance from the top of the brush material to the center of the slot or hole in the terminal

Bevels

Bevels on carbon brushes shall vary by steps of five degrees.

The length of a beveled brush shall he the distance from the (square) end of the toe of the bevel, if beveled on one end only, or the distance from toe to toe measured parallel to the side of the brush when both ends are beveled. In other words, the length will be that of the square-ended brush from which the beveled brush was made.

WESTINGHOUSE MOTOR STARTERS

FOR SINGLE PHASE AND SQUIRREL CAGE MOTORS

MANUALLY OPERATED—WK-10 AND WK-20

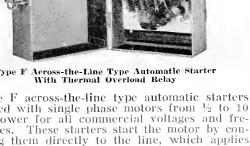
Type WK-10

WK-10 and WK-20 motor starting snap switches (Class 25,000) are used to start single phase and small squirrel cage induction motors up to 5 horsepower, 550 volts, and 2 horsepower, 110 volts, by connecting them directly to the line. They provide overload protection by means of thermal cutouts. These thermal cutouts permit the heavy starting current and short peaks above full load which do not endanger the motor, but, on continued overloads, open to disconnect the motor from the line.

These switches are of the safety type making it impossible for the operator to come in contact with live parts. The switch cannot be operated with the cover open and the cover cannot be opened with the switch in the "run" position.

For larger motors the safety type WK-30 motor starter is used. This is a safety knife switch using thermal cutouts.

AUTOMATIC—Type F Across-the-Line Type For Single Phase Motors



Type F Across-the-Line Type Automatic Starter With Thermal Overload Relay

Type F across-the-line type automatic starters are used with single phase motors from ½ to 10 horsepower for all commercial voltages and frequencies. These starters start the motor by connecting them directly to the line, which applies full line voltage to the motor. Standard motor starters will provide either low voltage release or protection—both with and without inverse time limit overload protection. These starters are especially desirable where push button control is desired or the application is such that a predetermined pressure or liquid level can be automatically obtained by the use of a pressure gauge master or float switch.

For Squirrel Cage Motors

Type F across-the-line type starters (Class 11190 and 11300) 1 to 25 horsepower, 2 and 3 phase, for all commercial voltages and frequencies, are used for starting squirrel cage induction motors by connecting them directly to the line. They are provided with over-load relay of either the thermal or coil type.

This type of starter provides a convenient and inexpensive means for starting small motors, where conditions permit the connecting of the motor directly to the line without transformer, resistance or other means for reducing the voltage.

WESTINGHOUSE SQUIRREL CAGE MOTOR STARTERS

MANUALLY OPERATED

TYPE 810 DRUM REVERSE SWITCH

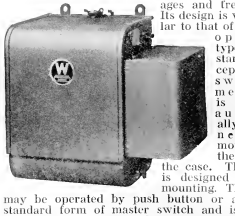
Drum reverse switches (Class 10100) 1 to 35 horsepower, are particularly suited for the operation of motors in machine-tool, wood working and similar services in which reversing is required. These switches are made for alternating or direct current circuits. They make the reversing connections to the motor and may be used to connect the motor directly across the line, or in connection with the manual or automatic starter.

TYPE A AUTO STARTERS—Class 10700

Used for starting squirrel cage motors from 5 to 200 horsepower by connecting them first to reduced voltage and then to the line. They are self-contained and consist of a switching mechanism, auto transformer, low voltage protective device and overload relay—all mounted in a dust proof, steel enclosing case. The auto transformers are provided with two taps, giving 65 and 80 per cent of the line voltage for starting; the 80 per cent tap is regularly connected when starters are shipped. The starter handle has three positions—start, off and run, each position plainly marked on the starter case. The handle will remain in the off and the run positions, but will not remain in the start position unless held, returning promptly to the off position if released. They are designed for both two and three phase circuits and for all commercial voltages and frequencies. Provision is made for both open and conduit wiring.

AUTOMATIC—TYPE AF AUTO STARTER

The type AF automatic auto starter (Class 11500) is a starter of the auto transformer type for motors of 5 to 200 horsepower, all commercial voltages and frequencies. Its design is very similar to that of the hand operated type A auto starter, except that the switching mechanism is operated automatically by magnet coils mounted on the side of the case. The starter is designed for wall mounting. The starter may be operated by push button or any other standard form of master switch and is suitable for either low voltage release or low voltage protection applications. The operation is entirely automatic, acceleration being obtained by a definite time limit relay which may be adjusted for any starting time up to 15 seconds. Overload protection is provided in the running position only, so that close calibration may be obtained



WESTINGHOUSE MOTOR STARTERS AND CONTROLLERS

FOR WOUND ROTOR MOTORS

Manually Operated

TYPE F MAGNETIC PRIMARY PANELS

Type F magnetic primary panels (Class 11300) will be found very useful in connection with drum controllers to furnish overload and low voltage protection, as well as acting as a disconnecting switch for the motor. Primary panels consist of a three pole contactor and two coil overload relay mounted in a cabinet as shown by the photograph of the line voltage starter on another page. This contactor is controlled by a push button and by the addition of a reset contact on the controller, will protect the motor from being started unless all resistance is in circuit.

TYPE PF STARTING RHEOSTATS

Type PF starting rheostats, secondary only (Class 12010), 1 to 50 horsepower, for all commercial voltages and frequencies are used for starting wound rotor induction motors for non-reversing applications where a face plate type of starter is desirable. They are characterized by rugged and fireproof construction and have been approved by the National Board of Fire Underwriters. The copper segments, which are practically the only wearing parts, are accessible and can be readily renewed.

These rheostats are not provided with any primary contacts and limit the starting current of the motor by inserting resistance in the motor secondary. They must be used in connection with a magnetic primary panel, circuit breaker or knife switch to control the motor primary. The starting resistor is Class 35 and is mounted at the rear of the face plate, making a complete secondary control unit.

All rheostats can be provided with enclosing covers to protect the face plate and the contacts from flying chips and other foreign material and the operator from accidental contact with live parts. Low voltage protection can be furnished on all sizes, but care should be taken when low voltage protection is furnished on the secondary controller that the primary switch also includes this feature, or otherwise the motor will be started with all resistance in circuit upon the return of voltage, and if left in this position for an appreciable length of time, the starting resistance will be burned out.

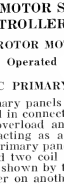
TYPE PF SPEED CONTROL RHEOSTATS

Type PF speed control rheostats, secondary only, 1 to 50 horsepower, for all commercial voltages and frequencies are used for starting and regulating the speed of wound rotor induction motors for non-reversing applications. They are furnished with Classes 93 and 96 resistors, and will furnish 50 per cent speed reduction for fan duty and machine duty respectively. In all other respects, these starters are identical with the PF starters for starting duty described above.

WESTINGHOUSE MOTOR STARTERS AND CONTROLLERS

FOR WOUND ROTOR MOTORS

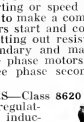
Manually Operated



TYPE RF CONTROLLERS

RF controllers (Class 8570) are used for starting and regulating the speed of wound rotor induction motors and are suited to all non-reversing applications where a drum type controller is desirable. They are simple in construction, reliable in operation, and all wearing parts can be quickly and easily repaired. The stationary and the moving contacts are heavy copper pieces. The fingers are pressed against the drum contacts by adjustable springs which are protected from the current by copper shunts. These controllers regulate the secondary connections only and do not open the primary circuit. They must have a separate primary magnetic contactor, circuit breaker or knife switch to control the motor primary. Also starting or speed regulating resistors must be added to make a complete control unit. These controllers start and control the speed of the motor by cutting out resistance connected in the motor secondary and may be used with either two or three phase motors providing the motor has a three phase secondary winding.

TYPE FA CONTROLLERS—Class 8620



For starting, reversing and regulating the speed of wound rotor induction motors and are suitable for all applications where a drum controller is desirable. These controllers regulate both the primary and the secondary circuits, and an extra primary switch is desirable only for furnishing overload and low voltage protection. Starting or speed regulating resistors must be added to make a complete control unit. These controllers start and regulate the speed of the motor by cutting out resistance connected in the motor secondary and may be used with either two or three phase motors providing the motor has a three phase secondary winding. The off, the forward, the reverse and the various speed points are indicated on the face of the top casting. A latch is provided in the off position which prevents inadvertent starting. A reset contact may be provided in the off position on several of these controllers.

TYPE S DRUM-CONTACTOR CONTROLLERS

Type S drum-contactor controllers (Class 7100), are used instead of both the RF and FA controllers in the larger sizes, because of the greater current capacity, and longer life of the rolling contacts. These controllers are built both for reversing and non-reversing service and are constructed the same as the direct current controllers described on another page, except that the sequence of the contactors is different. A reset contact is provided in the off position for use with a magnetic primary panel.

RESISTORS—Class 9010

Used with these controllers may be either of the grid or the tubular type, or a combination of grids and tubes, depending on the size and the characteristics of the motor. The three point suspension iron grids are strong and durable and will withstand very heavy overloads for short periods of time without injury. Complete description of these controllers will be furnished upon request.

WESTINGHOUSE MOTOR STARTERS
FOR WOUND ROTOR INDUCTION MOTORS

TYPE F—AUTOMATIC STARTERS

Wound rotor induction motors are used in practically all industrial applications where push button control, automatic starting or acceleration or automatic control from a float switch or pressure gauge is desired. They safeguard both operator and machine against improper starting or acceleration. Reliability, durability and simplicity are the features of these starters. There are few parts, which are rugged in construction and easily accessible. All connections are made by magnetic contactors, which are positive in action. The starters may be operated from a remote point by a push button or other type of master switch and proper connections are made automatically in the proper sequence. These starters may be used for either low voltage release or low voltage protection service. Starters arranged for low voltage release operation will automatically restart the motor upon return of power without the supervision of the operator after the motor stops, due to the failure of power. This arrangement is desirable for such services as pumps, fans and blowers, and, by the addition of float switch or pressure gauge, they will automatically maintain a predetermined liquid level or pressure. Starters arranged for low voltage protection will not restart the motor upon the return of power after a shut down from any cause, unless the master switch is again operated by the attendant. This arrangement is desirable for starters when used in connection with hoists, turntables, cranes and similar applications, where the operator or apparatus may be damaged by the unexpected starting of the motor. Standard automatic starters can be furnished with or without enclosing covers.

Type F Form B Non-Reversing

TYPE F FORM B STARTERS
Non-Reversing

Type F form B starters (non-reversing) 5 to 200 horsepower, two and three phase, all commercial voltages and frequencies are used for starting wound rotor induction motors in all industrial applications where the advantages of remote control and automatic starting and stopping are desired, and a wound rotor motor is employed.

These starters are furnished with or without overload protection and are designed, in general, for two classes of service, full load and 50 per cent full load torque—the main difference in the two being that the former requires one more accelerating point, more resistance and a slightly different accelerating relay setting.

Full load starting torque starters should be used on such applications as plunger pumps, positive pressure blowers, compressors starting with valves open, ore sieves, long line shafts and loads with heavy inertia.

WESTINGHOUSE MOTOR STARTERS
FOR WOUND ROTOR INDUCTION MOTORS

TYPE F FORM B STARTERS
Non-Reversing

Fifty per cent full load starting torque starters are used on motors driving machine tools, fans, blowers (except positive pressure), centrifugal pumps starting with valves closed and compressors shunted through a by-pass and similar applications requiring a starting torque of 50 per cent of full load or less.

Starters for 550 volts and below consist of a slate panel, on which is mounted a two pole, magnetic line contactor for connecting and disconnecting the motor primary, the necessary number of magnetic contactors for progressively short circuiting resistance in the motor secondary and accelerating relays for controlling the time of closing of these contactors.

Starters for 2200 volt motors are similar to those for lower voltages, with the exception that the two pole primary contactor is replaced by a three pole oil immersed contactor.

TYPE F FORM D CONTROLLERS
Reversing—Class 8950

Type F form D controllers, 10 to 750 horsepower, two and three phase, all commercial voltages and frequencies, are used for starting, reversing and speed control of wound rotor induction motors, driving cranes, hoist, lift bridges and kindred applications where automatic control is desired. These controllers are very similar to the type F form B, described above, except that reversing and speed control are obtained

SEMI-MAGNETIC CONTROLLERS

Type F form D semi-magnetic controllers are used for starting, stopping, reversing and controlling the speed of wound rotor induction motors. They are used on small hoists, bridges, cranes, dredges and similar applications where the conditions do not warrant a full magnetic controller and where overtravel, overload and low voltage protection are desired. Also where the primary voltage or current is too high to be successfully handled by a drum controller.

The selection of the proper type of controller depends upon the application, size of motor, frequency of service, proficiency of the operator and consideration of initial cost. Drum controllers as listed in class 8620, can sometimes be used as low priced equipments for motors as large as 150 horsepower where competent operators are employed, service is infrequent and other means are employed to protect against overtravel, overloads and failure of voltage. However, the majority of applications, 75 horsepower and above, should be equipped with magnetic controllers and due to their many advantages, it is often desirable to furnish magnetic controllers below this value.

Overload Protection

Overload protection is provided on equipments 550 volts and below by a two coil double break inverse time limit overload relay. The 2200 volt controllers include a type F circuit breaker which provides this feature.

The primary contacts of the drum contactor controller handle only the control circuit current and establish the direction of travel through the magnetic contactors. The secondary contacts are used to vary the motor speed by changing the resistance connected in the motor secondary.

Auxiliaries

Push buttons, float switches, pressure gauges, reverse switches and other accessories are described under Automatic Control Auxiliaries shown on another page.

C-H PRESSURE REGULATORS
ALTERNATING OR DIRECT CURRENT DIAPHRAGM TYPE—SINGLE POLE

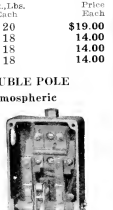
For Pressures above Atmospheric

Designed primarily to act as a pilot switch in connection with a motor self-starter, they may also be used as a single-pole switch for throwing across the line a small direct or single-phase alternating current motor of a capacity not greater than ¼ horse power, 110 volts, or ½ horse power, 220-550 volts.

Type	Pressure Range Lbs. per Sq. In.	Wt.,Lbs. Each	Price Each
A	1½ to 14	20	**$19.00**
B	5 to 60	18	**14.00**
C	6 to 115	18	**14.00**
D	7 to 175	18	**14.00**

DIAPHRAGM TYPE—DOUBLE POLE

For Pressures Above Atmospheric



Used with motors, driving pumps, compressors, etc., which may be connected directly to the line to start. They handle the power lines directly, no magnetic contactor being required. Satisfactory service can be obtained on systems handling air, gas, water or any fluid not injurious to the copper diaphragm. Full automatic operation. Solid copper contacts, double pole, quick make and break. Compact structure totally enclosed. Pressure inlet tapped for ¼ inch pipe.

Pressure Limitations—Pounds Per Square Inch

	Starting Type A	Starting Type B		Stopping Type A	Stopping Type B
Minimum	10	40	Minimum	30	60
Maximum	40	160	Maximum	60	200

Range between starting and stopping, non-adjustable, type A, 20; type B, 20–40 pounds.

Limitations—Horsepower

Alternating Current—	
110 Volts, single phase	1
220-550 volts, single phase	2
110 volts, two or three phase	2
220-550 volts, two or three phase	3
220-550 volts, two or three phase, high torque	5
Direct Current—	
115-550 volts	1

Type	Dimension, In. Height	Width	Depth	Wt. Lbs. Each	Price Each
A	8	6	7	30	**$13.00**
B	8	6	7	30	**13.00**

DIAPHRAGM TYPE—VACUUM-OPERATED

Designed to act similar to above regulators. They open the switch at high vacuum and close at low.

Single-pole

Type	Vacuum Range Inches of Mercury	Wt. Lbs. Each	Price Each
A	3 to 9	30	**$14.00**
B	3 to 18	30	**14.00**
C	3 to 28	30	**14.00**

C-H PRESSURE REGULATORS
ALTERNATING OR DIRECT CURRENT DIAPHRAGM TYPE—SINGLE POLE

For Pressures Above or Below Atmospheric

Used as an automatic means of controlling pilot circuits of automatic starters, used with alternating or direct current motors, operating pumps, compressors, etc.

Dials reading from 0 to 25, 50, 100, 150 or 250 pounds per square inch above atmospheric pressure or, from 0 to 30 inches of mercury below atmospheric pressure.

Price, Each **$40.00**

Higher capacity regulaters can be furnished. Prices and specification on request.

C-H FLOAT SWITCHES
SENSITIVE TYPE—SINGLE POLE

Alternating or Direct Current

For use where the force available for operating switch is small, where motion of float within closed tank is transmitted to switch by means of shaft passing through stuffing box. Intended primarily to be used as pilot switch in connection with motor self-starter.

Accessories consist of copper float, iron counterweight, two iron pulleys, and 15 feet copper chain, with four stop buttons.

Float Switch, Each **$13.00**

Accessories **8.00**

2, 3 AND 4 POLE—ENCLOSED TYPE

Used to automatically control alternating and direct current motors driving pumps. Contacts of knife switch type, quick make and break. Arranged for tank or sump operation. Completely enclosed, weatherproof structure. Case drilled for conduit. Complete with float, 5 feet of rod or 15 feet of chain, counterweight, pulleys and stops.

No. 1 for mounting on inside wall of tank; No. 2 for clamping over edge of tank; No. 3 with floor pedestal; No. 4 with floor pedestal, arranged for chain operation; No. 5 for mounting on outside of tank, with operating shaft extended to protect through tank wall; No. 6 for mounting on wall and arranged for chain operation.

Type of Switch	Price Each No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
2 Pole	**$24.00**	**$27.00**	**$28.00**	**$36.00**	**$26.00**	**$31.00**
3 Pole	**37.00**	**39.00**	**40.00**	**48.00**	**38.00**	**43.00**
4 Pole	**40.00**	**42.00**	**43.00**	**51.00**	**41.00**	**46.00**

Maximum Capacity—Horsepower

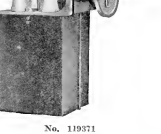
Type of Switch	Direct Current 5 H.P.,	Alternating Current
2 Pole	115–230 Volts	Single Phase 3 H.P.—110V.; 5 H.P.—220–250 Volts.
3 Pole		3 or 2 Phase, 3 Wire, 5 H.P. -110 V. 7½ H.P.-220–550V.
4 Pole	7½ H.P., 500 Volts	2 Phase,4 Wire, 5 H.P.—110 V. 7½ H. P.—220–550 V.

WESTINGHOUSE TYPE I OIL CIRCUIT BREAKERS

MANUALLY OPERATED—NON-AUTOMATIC—INDOOR SERVICE

For Capacities Up to 60 Amperes 4500 Volts A. C.

Interrupting Capacity at Rated Voltage, 300 Amperes



No. 119371

No. 226542

No. 226540

Application

The type I oil eircuit breakers are two, three or four pole breakers for controlling inductive loads of small capacity on alternating current eircuits. They are made for either panel or wall mounting and are either dust proof or dust and damp proof as listed. The dust and damp proof wall mounting forms are particularly adapted as service switches mounted in cellars, kiosks and outdoor switch houses, where the breaker is subjected to moisture but not exposed to the weather. The double throw breakers of this form are often used as service change over switches on block signal and other systems.

Operation

Non-automatic manually operated only. In general, they are opened and closed by one lever type handle, but the dust and damp proof switches, Nos. 226540 and 226541, have crank type handles. No. 226540 is a single throw three pole breaker having two positions, on and off, as in the regular form.

No. 226541 is a double throw two pole transfer breaker having three positions: (1) both throws on, (2) one throw on with the other throw off, and (3) first throw off with the seeond throw on. The double two pole selector breaker, No. 226542, has two lever type handles, either of which can be in the on or off position independent of the other, making four combinations; in this breaker both sets of blades are mounted on the same hinge jaws.

The eonstant eurrent lighting form of breaker No. 119372 has two handles. One handle operates a single pole used for short eireuiting the eonstant current regulating deviee, the other operates two poles for eontrolling both sides of the line. This form of breaker is available for panel mounting only.

Construction

The panel mounting form of breaker is designed for mounting on the rear of the switehboard panel or iron frame bracket. The eover plate through which the handle projects is supplied for mounting on the front of the panel or braeket.

The wall mounting form of breaker is so constructed that the handle projects over the baek of the ease, thereby permitting the breaker to be mounted directly on a wall, post, or any convenient

†Although the type I oil eireuit breakers are insulated for 4500 volt service, engineering practiee indicates that panel mounting breakers should not be used on serviee voltages higher than 2500 volts. These breakers are made for mounting on panels 2 inches thiek. When they are to be mounted on thinner panels, spaeers must be used on the mounting bolts. ‡Special switeh for use on eonstant current lighting panels.

Construction

vertical support. This feature renders the breaker particularly adaptable for installation in places where no switchboard is available for mounting apparatus.

Tanks—The oil tanks are rectangular in shape and are made of heavy sheet iron. An insulating lining is used as an additional protection against areing from current carrying parts to the tank metal.

Mechanism—The knife blade contaets are actuated by speeially treated wooden rods eonneeted to a lever which is operated by a handle outside of the breaker.

Terminal Bushings and Studs—The leads are brought out directly at the top. Connections to the outside eireuit are made inside the breaker by a socket terminal and a porcelain insulator is slipped over the joint, thus providing a straight eontinuous connection from the line with maximum insulation.

Contaets—Knife blade contaets are used as they insure the best eontact in this elass of breaker for low temperature rise.

DUST PROOF PANEL MOUNTING†

Single Throw

Mfrs. No.	Poles	Gal. Oil	Wt. Lb. Net	Wt. Lb. Shpg.	Price Each
119371	2	1	10	25	**$28.00**
123242	3	1½	15	35	**35.00**
119372‡	3‡	2	17	40	**38.00**
123243	4	2½	20	45	**48.00**

DUST PROOF WALL MOUNTING

Single Throw

108099	2	1	10	25	**27.00**
108100	3	1½	15	35	**36.00**
108101	4	2½	20	45	**43.00**

DUST AND DAMP PROOF WALL MOUNTING

Single Throw

226540	3	1½	17	40	**67.00**
226542	Selector Double Two	2	20	45	**62.00**

Double Throw

226541	2	2	20	45	**62.00**

WESTINGHOUSE TYPE D OIL CIRCUIT BREAKERS

MANUALLY OPERATED—NON-AUTOMATIC—INDOOR, OUTDOOR AND SUBWAY SERVICE SINGLE AND DOUBLE THROW

For Capacities Up to 300 Amperes, 15000 Volts, A. C.
Interrupting Capacities at Rated Voltage 700 to 800 Amperes

APPLICATION

These non-automatic oil circuit breakers have a wide range of application, being made for indoor service in panel mounting, direct wall mounting and remote control wall or pipe mounting forms; for outdoor service in pole or wall mounting; and for subway mounting.

Indoor for Panel Mounting 300 Ampere, 7500 Volt, Two-Pole, Double Throw

Indoor Mounting—The panel mounting form, as its name indicates, is designed for mounting on the rear of the switchboard panel or frame bracket.

The direct wall mounting form is particularly adaptable to motor installations, because of the ease with which it may be mounted on any vertical support convenient to the motor operator.

The remote control wall or pipe mounting form allows the breaker to be mounted at any suitable place, and operated from a switchboard or other position as desired.

Outdoor Mounting—The outdoor form of wall or pole mounting breaker is primarily intended for service in exposed places. It is particularly adapted for controlling lines where they enter buildings, for controlling branch feeders from the main lines, for sectionalizing feeders, and cutting out transformers, or for any of the other numerous purposes for which an outdoor form of breaker may be utilized on distribution systems.

Subway Mounting—The subway form of breaker is intended for mounting in subways, manholes or other places where a breaker may be required to operate submerged. The subway form of breaker is made in two, three or four pole; single and double throw, for capacities up to 200 amperes, 4500 volts.

Interrupting Capacity—The interrupting capacity at rated voltage of the type D 200 ampere breakers is 800 amperes; of the 300 ampere breaker, 700 amperes.

DISTINCTIVE FEATURES

The characteristic features of the type D oil circuit breakers are: Knife blade contacts submerged in oil and protected by auxiliary arcing contacts; live parts carried on insulating supports affording a high quality of permanent insulation between adjacent poles, and between the frame and live parts; all parts supported by a single frame easily mounted on panel, wall, pipe frame, post bracket or other vertical support; small space required for mounting; accessibility of parts for the purpose of inspection and repair; enclosure of all live metal parts; simple but strong construction.

OPERATION

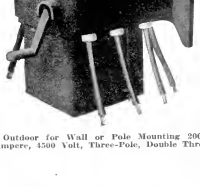
The type D oil circuit breakers are non-automatic direct or remote control, manually operated only. In general, they are opened and closed by one lever type or crank type handle, except in the case of a double two pole breaker. In the double two pole breaker there is a separate handle for each part of the breaker.

CONSTRUCTION—Indoor Form

Mounting—The panel mounting form of breaker is designed for mounting on the rear of the switchboard panel, or iron frame bracket; the cover plate through which the handle projects, is supplied for mounting on the front of the panel or bracket.

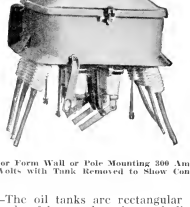
The wall mounting form of breaker is so constructed that the handle projects outward over the tank, thereby permitting the breaker to be mounted directly on a wall, post, or any convenient vertical support. This feature renders the breaker particularly adaptable for installation in places where no switchboard is available for mounting apparatus, and for motor installations where it is desirable to mount the breaker convenient for the motor operator.

The remote control wall or pipe mounting form of breaker is so constructed that the breaker proper is mounted directly on a wall, or other vertical support, or upon pipe framework. The breaker mechanism is operated through bell cranks, from a cover plate and handle, mounted on the front of a switchboard panel, iron frame bracket, or other support.



Outdoor for Wall or Pole Mounting 200 Ampere, 4500 Volt, Three-Pole, Double Throw

WESTINGHOUSE TYPE D OIL CIRCUIT BREAKERS
Continued



Outdoor Form Wall or Pole Mounting 300 Ampere, 7500 Volts with Tank Removed to Show Contacts

Tanks—The oil tanks are rectangular in shape and are made of heavy sheet iron. Individual insulating cells on single throw breakers, and an insulating lining on double throw breakers, are used as an additional protection against arcing from current carrying parts to the metal of the tank.

Where the individual insulating cells are used on the single throw breakers, they form a separate compartment for each pole. While the tank is securely fastened to the breaker frame, the construction permits of easy removal for the purpose of inspection and repair.

Mechanism—The hinged knife blade contacts are actuated by specially treated wooden rods connected to a lever, which is operated by a handle outside of the breakers. This design gives a simple but strong construction.

Terminal Bushings and Studs—The leads in the 200 ampere, 4500 volt breaker are brought out directly at the top. Connections to the outside circuit are made inside the breaker by a socket terminal, and a porcelain insulator is slipped over the joint, thus providing a straight continuous connection from the line with maximum insulation.

In the 300 ampere, 7500 volt breaker, the terminal bushing or stud with stationary contact clips on the lower extremity, is supported by a one piece vertical, pillar type, porcelain bushing clamped to the framework. The studs and micarta tube details are clamped to these insulators. This construction avoids the use of babbitt and cement, reducing the cost and the time and labor required for maintenance. Lock washers are used on the clamped bolts and current carrying parts, to prevent loosening from vibration or hammer blows that might occur in the operation of the breaker or from other apparatus located nearby.

Terminals and Terminal Lugs—On the 300 ampere, 7500 volt breaker, copper tube terminals are supplied. For connecting this form of terminal to the terminal stud, a brass or copper sleeve is supplied, threaded at one end to screw to the stud, and split at the other end to receive the flat end of the tube terminal. The copper tube terminal is held in the slot of the sleeve by a bolt, supplied with a lock washer. On special order, terminals may be omitted, or contact nuts with or without special terminals supplied. Westinghouse-Frankel solderless connectors can be supplied on these breakers.

Main and Auxiliary Contacts—Hinged knife blade contacts are used, as they insure the best contact in this class of breaker for low temperature rise. The main contact jaws are flared so that the knife blade readily engages upon closing. The breaker is essentially a knife switch submerged in oil and arranged for external operation.

SPECIAL BREAKERS

The double two pole breakers are in reality two, two pole breakers mounted one behind the other in the same case, and each controlled by its own handle. This arrangement gives a very compact breaker for controlling two circuits, when there is not room on the switchboard panel for two separate breakers. These breakers are two pole, single and double throw.

OUTDOOR FORM

The wall or pole mounting breaker is enclosed in a weather proof case having lugs cast thereon for mounting the breaker on a wall or pole. On breaker No. 257694, stirrups are also provided for mounting the breakers beneath the cross arm.

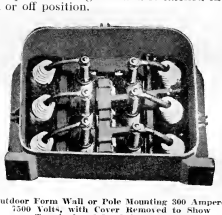
In these breakers, the contact and insulation construction is exactly the same as described for the indoor forms, the only difference being in the construction of the handle and the method of bringing out the leads. On these outdoor breakers a crank handle is used for operation. The leads are brought out underneath the top part of the case, through sealed bushings at the side and underneath the main casting.

These breakers do not have excessive insulation and should not be installed on lines subject to surges above the insulation test values given in rule 7323 of the April, 1921, edition of the "Standard Rules of the A. I. E. E.", unless protected by lightning arresters or other surge protective devices.

SUBWAY FORM

The housing for the subway breaker complete, including the oil tank, is of cast iron. All housing joints are made water proof by the use of gaskets. The housing has lugs cast thereon for mounting the breaker on the wall of the subway, manhole or other place of mounting.

In the subway form of breaker, the contact and insulation construction is the same as that described on a previous page for the indoor form of breaker the only difference being in the method of bringing out the leads. The leads enter the breaker housing through individual water proof bushings in the top of the case. The operating handle is provided with a water proof stuffing box and is latched in either the on or off position.



Outdoor Form Wall or Pole Mounting 300 Amperes 7500 Volts, with Cover Removed to Show Terminal and Lead Arrangement

WESTINGHOUSE OIL CIRCUIT BREAKERS

TYPE D OIL CIRCUIT BREAKERS

Except where noted, number includes the breaker complete as listed, with oil.

INDOOR FORM—DIRECT CONTROL PANEL MOUNTING

Single Throw

Mfrs. No.	Max. Cont. Amp.	Max. Volts	Poles	Gal. Oil	Wt.Lb. Shpg.*	Price Each
27736	200	4500	2	1½	50	$70.00
203428	300	7500	2	3	100	103.00
27741	200	4500	3	2	65	87.00
203429	300	7500	3	3	115	128.00
27746	200	4500	4	2½	78	114.00
203430	300	7500	4	4	135	157.00
Double Throw						
27751	200	4500	2	2	68	92.00
203431	300	7500	2	5	125	125.00
27756	200	4500	3	3	88	112.00
203432	300	7500	3	5	150	151.00
27761	200	4500	4	3½	108	149.00
203433	300	7500	4	6	175	200.00
Double Two Pole						
58650	200	4500	S. T.	2½	78	160.00
58651	200	4500	D. T.	3½	108	218.50

WALL MOUNTING

Single Throw

Mfrs. No.	Max. Cont. Amp.	Max. Volts	Poles	Gal. Oil	Wt.Lb. Shpg.*	Price Each
27766	200	4500	2	1½	50	70.00
203434	300	7500	2	3	100	103.00
27771	200	4500	3	2	60	87.00
203435	300	7500	3	3	115	128.00
27776	200	4500	4	2½	78	114.00
203436	300	7500	4	4	135	157.00
Double Throw						
27781	200	4500	2	2	68	92.00
203437	300	7500	2	5	125	125.00
27786	200	4500	3	3	88	112.00
203438	300	7500	3	5	150	151.00
27791	200	4500	4	3½	108	149.00
203439	300	7500	4	6	175	200.00

OUTDOOR—WALL OR POLE MOUNTING

Single Throw

Mfrs. No.	Max. Cont. Amp.	Max. Volts	Poles	Gal. Oil	Wt.Lb. Shpg.*	Price Each
257694†	200	4500	2	1½	78	77.00
57930	200	4500	1	1	55	65.00
221943	200	4500	2	1½	78	74.00
221944	200	4500	3	2½	96	93.00
221945	200	4500	4	3	125	130.00
221949	300	7500	2	4¾	175	146.00
221950	300	7500	3	4¾	175	176.00
221953	200	15000	2	6¼	200	178.00
221954	200	15000	3	6¼	200	213.50
Double Throw						
221946	200	4500	2	2½	108	106.00
221947	200	4500	3	3½	138	150.00
221948	200	4500	4	4½	175	200.00
257742	300	4500	3	6½	220	238.00

For single pole switches other than listed, double pole switches can be used with contacts in series (giving double break) or in parallel (giving double capacity; i. e., 400 amperes).

*Approximate shipping weight without oil; weight of oil equals 9 pounds per gallon. †Similar to No. 221943 which has special cover and stirrup for cross arm mounting.

WESTINGHOUSE OIL CIRCUIT BREAKERS

TYPE D OIL CIRCUIT BREAKERS

Except where noted, number includes the breaker complete as listed, with oil.

INDOOR FORM—REMOTE CONTROL

Bell Cranks Above or Below Floor

Single Throw

Mfrs. No. Wall Mounting	Mfrs. No. Pipe Mounting	Max. Cont. Amp.	Max. Volts	Poles	Gal. Oil	Wt.Lb. Shpg.*	Price Each
206000	206036	200	4500	2	1½	110	$95.00
206012	206048	300	7500	2	3	150	128.00
206001	206037	200	4500	3	2	115	112.00
206013	206049	300	7500	3	3	170	153.00
206002	206038	200	4500	4	2½	125	139.00
206014	206050	300	7500	4	4	180	182.00
Double Throw							
206003	206039	200	4500	2	2	125	112.00
206015	206051	300	7500	2	5	180	155.00
206004	206040	200	4500	3	3	145	142.00
206016	206052	300	7500	3	5	210	181.00
206005	206041	200	4500	4	3½	170	179.00
206017	206053	300	7500	4	6	235	230.50

The coverplates controlling remote control manually operated breakers are designed for mounting on 2 inch material. When they are to be mounted on material less than 2 inches thick, spacers must be used on the mounting bolts; when they are to be mounted on material between 2 and 4 inches thick, longer mounting bolts than standard are required. Spacers or longer mounting bolts will be furnished free of charge when ordered with the breaker.

SUBWAY FORM

Single Throw

Mfrs. No.	Max. Cont. Amp.	Max. Volts	Poles	Gal. Oil	Wt.Lb. Shpg.	Price Each
194389	200	4500	2	2	115	$111.50
194391	200	4500	3	2½	130	133.00
194393	200	4500	4	3½	150	184.00
Double Throw						
194390	200	4500	2	3	130	146.00
194392	200	4500	3	3½	150	181.00
194394	200	4500	4	5	170	225.50

For single pole switches other than listed, double pole switches can be used with contacts in series (giving double break) or in parallel (giving double capacity; i. e., 400 amperes).

Note:—With each subway type of breaker should be ordered the necessary cable bushings from the following table. These are not included in number but are included in the price of the breaker.

CABLE BUSHINGS

For Use on Subway Mounting Switches

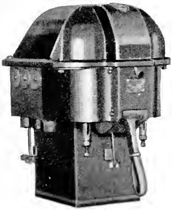
Mfrs. No	Diam. Hole, In.	Price Each	Mfrs. No	Diam. Hole, In.	Price Each
219970	⅝	‡	47969	1¼	‡
47608	¾	‡	59932	1½	‡
60010	1	‡	....	......	‡

*Approximate shipping weight without oil; weight of oil equals 9 pounds per gallon.

‡Included in price of subway breakers listed above.

WESTINGHOUSE TYPE F-10 OIL CIRCUIT BREAKERS

MANUALLY OPERATED—NON-AUTOMATIC AND AUTOMATIC FOR INDOOR SERVICE—SINGLE AND DOUBLE THROW



For Capacities Up to 200 Amperes, 2500 Volts; 300 Amperes, 750 Volts; Alternating Current. Interrupting Capacity at 2500 Volts, 3000 Amperes

(Unless Otherwise Stated Ratings Are on a 60-cycle Basis)

The type F-10 oil circuit breakers comprise a line of moderate capacity, non-automatic and automatic manually operated breakers for indoor service primarily in industrial applications. This breaker is made in only one form, wall mounting, for capacities up to 200 amperes at 2500 volts, and 300 amperes at 750 volts.

Distinctive features are—Flared wedge contacts under heavy pressure. Submersion and opening of all contacts under oil. The ease of changing from non-automatic to automatic breakers by the addition of the various overload devices only. Convenient location of trip coils making calibration adjustment accessible. Breaker opens by gravity, assisted by tension springs and is equipped with bumpers to absorb the shock. Open position is maintained by gravity. Inability to hold full automatic breaker in closed position against predetermined conditions of tripping. Strong tanks and tank supports. Tanks removable without disturbing operating mechanism or contacts, thereby making inspection easy. Ample air space at tank top to allow for gas expansion.

MANUALLY OPERATED—NON-AUTOMATIC

Single Throw

Mfrs. No.	Max. Cont. Amp.	Max. Volts	Poles	Int. Cap. at Rated Volts In Amp.	Gal. Oil	Wt. Lb. Shpg.	Price Each
362034	200	2500	2	3000	2¼	116	**$60.00**
362032	200	2500	3	3000	2¼	119	**75.00**
357232	†200	2500	3	3000	2¼	119	**75.00**
362035	300	750	2	12200	2¼	122	**108.00**
362033	300	750	3	12200	2¼	126	**135.00**

†This is a special breaker designed for controlling oil-well motors and similar applications. Provision is made for connecting both trip coils on the dead side of the breaker by running leads into the conduit box. The essential difference between this special breaker and the standard breaker is that the left middle stud of the standard breaker is interchanged with the right middle stud to form the special breaker. For a complete special breaker order:

1—Breaker No. 357232. 2—Double series current overload trip coil inverse time limit attachments calibrated for both 25 and 125 amperes nominal No. 357233. 1—Hand rest undervoltage release attachment for proper voltage. 1—Conduit box No. 362335.

Interrupting Capacity of Type F-10 Oil Circuit Breakers

Rated Amp.	Rated Volts	Method of Control†	Greatest Carrying Capacity—Amperes 0 2 Sec.	1 Sec.	5 Sec.	Max. Int. Cap. in Amp. at Serv. Volt. ‡ of 750 V.	2500 V.
200	2500	D	100*	50*	25*	10,000	3000
300	750	D	100*	50*	25*	12,200	....

*Number of times coil rating.

†D = Direct Control.

‡Other data and method of obtaining interrupting capacities at intermediate service voltages furnished on request.

Note:—The carrying capacity of the series trip coils may prevent taking full advantage of interrupting capacity of breaker. Breaker reactance values given for the series trip type F-11 breakers are to be used for corresponding type F-10 breakers.

AUXILIARIES

Series Current Trip Coil Attachment
2500 Volts Maximum

Mfrs. No.	Amp.	Wt. Lb.	Price Each	Mfrs. No.	Amp.	Wt. Lb.	Price Each
362045	5	3¼	**$8.00**	**362050**	100	3¼	**$8.00**
362046	10	3¼	**8.00**	**362051**	150	3¼	**8.00**
362047	15	3¼	**8.00**	**362052**	200	3¼	**8.00**
362048	25	3¼	**8.00**	**†362295**	300	3¼	**8.00**
362049	50	3¼	**8.00**	....	.....	.....	....
With Inverse Time Limit Attachment							
362296	5	3½	**15.00**	**357233**	*25–125	3½	**25.00**
362297	10	3½	**15.00**	**362301**	100	3½	**15.00**
362298	15	3½	**15.00**	**362302**	150	3½	**15.00**
362299	25	3½	**15.00**	**362303**	200	3½	**15.00**
362300	50	3½	**15.00**	**†362304**	300	3½	**15.00**

*Special double series current overload trip coil for oil well motor control.

†For 750 volts only.

Undervoltage Release Attachment Complete
Hand Reset

25 Cycle Resistance	25 Cycle Mfrs. No.	25 Cycle Price Each	Volts	60 Cycle Resistance	60 Cycle Mfrs. No.	60 Cycle Price Each
None	**362312**	**$20.00**	110	None	**362311**	**$15.00**
None	**362313**	**20.00**	220	None	**362312**	**20.00**
None	**362314**	**20.00**	440	None	**362313**	**20.00**
None	**362315**	**20.00**	550	None	**362313**	**20.00**
None	None	None	600	None	**362314**	**20.00**
None	*		2500	None	*	*
Automatic Reset or Electric Locknut Device						
None	**362317**	**43.25**	110	None	**362316**	**43.25**
None	**362318**	**43.25**	220	None	**362317**	**43.25**
None	**362319**	**43.25**	440	None	**362318**	**43.25**
None	**362320**	**43.25**	550	None	**362318**	**43.25**
None	None	None	600	None	**362319**	**43.25**
None	*		2500	None	**375853**	*

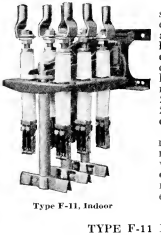
*Use 110 volt undervoltage release or electric lockout device in connection with voltage transformer No. 362334.

Miscellaneous Auxiliaries

Mfrs. No.	Description	Breaker Amp.	Breaker Volts	Price Each
362334	Voltage Transformer, 2500 Volts, 25 and 60 Cycles	all	2500	**$13.30**
362338	Ammeter Mounting Cover	all	all	**26.70**
362335	Conduit Box	all	all	**13.30**
362332	Signal Switch†	all	all	**15.00**
362333	Signal Switch with Mounting Bracket*	all	all	**20.00**
375853	One Set Gaskets	all	all	**7.50**

†For mounting on undervoltage or electric lockout attachments. *For use when the undervoltage or lockout attachments are not used.

WESTINGHOUSE TYPES F-11 AND F-22 OIL CIRCUIT BREAKERS



Type F-11, Indoor

The F-11 and F-22 oil circuit breakers (superseding similar types F-1 and F-2 oil circuit breakers) comprise a line of moderate capacity, non-automatic and automatic, manually-operated breakers for indoor service. The type F-22 breakers are in reality a continuation of the F-11 line of breakers but of larger capacity. The type F-11 breakers are made in the panel mounting and remote control, wall and pipe mounting forms; for 200 amperes, 4500 volt service and 400 amperes 2500 volt service, two and three pole, single and double throw.

The type F-22 breakers are made in the panel mounting, and remote control, wall and pipe mounting forms; for 400 and 600 amperes, 7500 volt service, and 800 amperes, 2500 volt service; one, two, three and four pole, single throw, common frame or multiple single pole, manually and electrically operated.

Type F-22, Indoor

TYPE F-11 NON-AUTOMATIC—PANEL MOUNTING—DIRECT CONTROL
On Panel 1½ or 2 Inches Thick—Single-Throw

Mfrs. No.	Maximum—Continuous Amps. 60 Cycle	25 Cycle	Maximum Volts	No. of Poles	Interrupting Capacity in Amps. at Rated Volts	Gal. Oil	Approx. Wt. Lbs. Net	Shpg.	Price Each
296748	200	200	4500	2	3200	3½	92	105	**$ 84.00**
296749	200	200	4500	3	3200	3½	100	115	**105.00**
296750	400	500	2500	2	6500	3½	96	110	**118.00**
296751	400	500	2500	3	6500	3½	105	120	**144.00**
					Double-Throw				
296752	200	200	4500	2	3200	5½	118	135	**153.00**
296753	200	200	4500	3	3200	5½	131	150	**180.00**
296754	400	500	2500	2	6500	5½	127	145	**198.00**
296755	400	500	2500	3	6500	5½	139	160	**235.00**

TYPE F-11—NON-AUTOMATIC—WALL MOUNTING*—REMOTE CONTROL—Single-Throw

296756	200	200	4500	2	3200	3½	100	115	**109.00**
296757	200	200	4500	3	3200	3½	109	125	**130.00**
296758	400	500	2500	2	6500	3½	105	120	**143.00**
296759	400	500	2500	3	6500	3½	113	130	**169.00**
					Double-Throw				
296766	200	200	4500	2	3200	5½	135	155	**203.00**
296761	200	200	4500	3	3200	5½	148	170	**230.00**
296762	400	500	2500	2	6500	5½	144	165	**248.00**
296763	400	500	2500	3	6500	5½	157	180	**285.00**

TYPE F-22—NON-AUTOMATIC—PANEL MOUNTING—DIRECT CONTROL
On Panel 1½ or 2 Inches Thick—Single Throw

333407	400	500	7500	1	1600	3	72	90	**81.00**
333408	400	500	7500	2	2500	7½	92	110	**128.00**
333409	400	500	7500	3	2500	7½	108	125	**157.00**
333410	400	500	7500	4	2500	10	150	175	**191.00**
333411	600	750	7500	1	1600	3	77	90	**90.00**
333412	600	750	7500	2	2500	7½	103	120	**143.00**
333413	600	750	7500	3	2500	7½	123	145	**183.00**
333414	600	750	7500	4	2500	10	173	200	**224.00**
333415	800	1000	2500	1	5700	2¾	72	90	**106.00**
333416	800	1000	2500	2	9000	6½	98	120	**181.00**
333417	800	1000	2500	3	9000	6½	115	130	**232.00**
333418	800	1000	2500	4	9000	9	173	200	**290.00**

TYPE F-22—NON-AUTOMATIC—WALL MOUNTING*—REMOTE CONTROL—Single-Throw

333419	400	500	7500	1	1600	3	87	100	**106.00**
333420	400	500	7500	2	2500	7½	107	125	**153.00**
333421	400	500	7500	3	2500	7½	123	145	**182.00**
333422	400	500	7500	4	2500	10	165	190	**216.00**
333423	600	750	7500	1	1600	3	92	110	**115.00**
333424	600	750	7500	2	2500	7½	118	135	**168.00**
333425	600	750	7500	3	2500	7½	138	160	**208.00**
333426	600	750	7500	4	2500	10	188	215	**249.00**
333427	800	1000	2500	1	5700	2¾	87	100	**131.00**
333428	800	1000	2500	2	9000	6½	113	130	**206.00**
333429	800	1000	2500	3	9000	6½	130	150	**257.00**
333430	800	1000	2500	4	9000	9	188	215	**315.00**

*Wall mounting breakers can be made pipe mounting by the addition of pipe mounting brackets.

WESTINGHOUSE TYPES F-11 AND F-22 OIL CIRCUIT BREAKERS

TYPE F-22 MULTIPLE SINGLE POLE OIL CIRCUIT BREAKERS
NON-AUTOMATIC—REMOTE CONTROL—WALL MOUNTING*

Single Throw—Manually Operated

Mfrs. No.	Maximum Continuous Amps. 60 Cycle	Maximum Continuous Amps. 25 Cycle	Maximum Volts	No. of Poles	Interrupting Capacity in Amps at Rated Volts	Gal. Oil	Approx.‡ Wt. Lbs. Net	Approx.‡ Wt. Lbs. Shpg.	Price Each
363369	400	500	7500	2	2900	6	130	200	**$225.00**
363370	400	500	7500	3	2900	9	190	270	**330.00**
363371	400	500	7500	4	2900	12	250	340	**440.00**
363372	600	750	7500	2	2900	6	140	210	**250.00**
363373	600	750	7500	3	2900	9	205	285	**375.00**
363374	600	750	7500	4	2900	12	270	360	**500.00**
363375	800	1000	2500	2	10400	5½	130	200	**275.00**
363376	800	1000	2500	3	10400	8¼	190	270	**415.00**
363377	800	1000	2500	4	10400	11	250	340	**550.00**

TYPE F-22 OIL CIRCUIT BREAKERS
NON-AUTOMATIC—ELECTRICALLY OPERATED—WALL MOUNTING*

125 Volt Direct Current Control

363348	400	500	7500	1	1600	3	142	202	**236.00**
363349	400	500	7500	2	2500	7½	162	232	**283.00**
363350	400	500	7500	3	2500	7½	180	260	**312.00**
363351	400	500	7500	4	2500	10	220	310	**346.00**
363352	600	750	7500	1	1600	3	147	207	**245.00**
363353	600	750	7500	2	2500	7½	173	243	**298.00**
363354	600	750	7500	3	2500	7½	193	273	**338.00**
363355	600	750	7500	4	2500	10	243	333	**379.00**
363356	800	1000	2500	1	5700	2¾	142	202	**261.00**
363357	800	1000	2500	2	9000	6½	168	238	**336.00**
363358	800	1000	2500	3	9000	6½	185	265	**387.00**
363359	800	1000	2500	4	9000	10	243	333	**445.00**

TYPE F-22 MULTIPLE SINGLE POLE OIL CIRCUIT BREAKERS
NON-AUTOMATIC—ELECTRICALLY OPERATED—WALL MOUNTING*

125 Volt Direct Current Control

363360	400	500	7500	2	2900	6	200	270	**365.00**
363361	400	500	7500	3	2900	9	260	380	**470.00**
363362	400	500	7500	4	2900	12	320	410	**580.00**
363363	600	750	7500	2	2900	6	210	270	**390.00**
363364	600	750	7500	3	2900	9	275	355	**515.00**
363365	600	750	7500	4	2900	12	340	430	**640.00**
363366	800	1000	2500	2	10400	5½	200	270	**415.00**
363367	800	1000	2500	3	10400	8¼	260	340	**555.00**
363368	800	1000	2500	4	10400	11	320	410	**690.00**

*Wall mounting breakers can be made pipe mounting by the addition of pipe mounting brackets. Pipe mounting brackets will be furnished "free of charge" with wall mounting breakers when included as an extra item with the wall mounting breakers for which they are intended.

‡Weight does not include oil. Net weight of oil is approximately 7½ pounds per gallon; shipping weight of oil is approximately 9 pounds per gallon.

AUXILIARIES FOR MANUALLY OPERATED TYPES F-11 AND F-22 OIL CIRCUIT BREAKERS

Series or Transformer Trip Coil Attachment Complete

Mfrs. No.	Amperes	Price Each
296765	5	**$8.75**

Series Trip Coil Attachment Complete 750 Volts Maximum

296766	10	**19.80**
296767	25	**19.80**
296768	50	**19.80**
296769	75	**19.80**
296770	100	**19.80**
296771	150	**19.80**
296772	200	**19.80**

Series or Transformer Trip Coil with Inverse Time Limit Attachment Complete

296773	5	**21.50**

Series Trip Coil with Inverse Time Limit Attachment Complete, 750 Volts Max.

Mfrs. No.	Amperes	Price Each
296774	10	**$32.75**
296775	25	**32.75**
296776	50	**32.75**
296777	75	**32.75**
296778	100	**32.75**
296779	150	**32.75**
296780	200	**32.75**

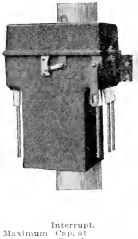
Transformer Trip Coil with Direct Trip Attachment Complete

296781	5	**22.50**

WESTINGHOUSE TYPE F OIL CIRCUIT BREAKERS

TYPE F-1 WEATHERPROOF MANUALLY OPERATED—SINGLE THROW**

Series Trip Full Automatic with Inverse Time Limit Attachment



The type F-1 breakers are listed in weatherproof cases, two, three and four pole. These breakers are manually operated full automatic with series trip coils and adjustable time element dashpots immersed in the oil, and thus protected from moisture. They can be equipped on special order with self-resetting undervoltage release device enclosed in the case under the cover. The undervoltage release coils can be connected directly in the circuit on voltages up to 550, but on higher voltages, separate weatherproof voltage transformers are required.

These breakers are being used for the control of motors in connection with drum controllers. For these applications an electrical lock-out device to prevent the closing of the breaker unless the controller is in the "off" position and can be furnished on special order.

In the 750 volt breakers, the contact support is a slate base and in the 4500 volt it is of vertical porcelain pillars. The terminals are inside the case in the 750 volt breakers, and in the 4500 volt the leads are brought outside the case. When so ordered, these breakers will be supplied for conduit wiring and at the same price as the listed breakers. The conduit wiring breakers differ from the listed breakers in that the insulations for leads are omitted, and the breaker housing is drilled for the conduit.

For Voltages Up to 750

Maximum Continuous Amperes	Interrupt. Cap. at Rated Voltage Amps.	Two Pole Mfrs. No.	Gal Oil	Ship.* Wt. Lb.	Price Each	Three Pole Mfrs. No.	Gal. Oil	Ship.* Wt. Lb.	Price Each	Four Pole Mfrs. No.	Gal Oil	Ship.* Wt. Lb.	Price Each
5	500	**205192**	4½	150	**$118.00**	**205202**	4½	155	**$141.00**	**205212**	6	175	**$189.00**
10	1000	**205193**	4½	150	**118.00**	**205203**	4½	155	**141.00**	**205213**	6	175	**189.00**
15	1500	**205194**	4½	150	**118.00**	**205204**	4½	155	**141.00**	**205214**	6	175	**189.00**
25	2500	**205195**	4½	150	**118.00**	**205205**	4½	155	**141.00**	**205215**	6	175	**189.00**
50	5000	**205196**	4½	150	**118.00**	**205206**	4½	155	**141.00**	**205216**	6	175	**189.00**
75	7500	**205197**	4½	150	**118.00**	**205207**	4½	155	**141.00**	**205217**	6	175	**189.00**
100	10000	**205198**	4½	150	**118.00**	**205208**	4½	155	**141.00**	**205218**	6	175	**189.00**
150	10000	**205199**	4½	150	**134.00**	**205209**	4½	155	**163.00**	**205219**	6	175	**215.00**
200	10000	**205200**	4½	150	**138.00**	**205210**	4½	155	**165.00**	**205220**	6	175	**220.00**
300	15000	**205201**	4½	150	**140.00**	**205211**	4½	155	**168.00**	**205221**	6	175	**225.00**

For Voltages Up to 4500

5	500	**205222**	4½	155	**148.00**	**205231**	4½	160	**178.00**	**205240**	6	182	**235.00**
10	1000	**205223**	4½	155	**148.00**	**205232**	4½	160	**178.00**	**205241**	6	182	**235.00**
15	1500	**205224**	4½	155	**148.00**	**205233**	4½	160	**178.00**	**205242**	6	182	**235.00**
25	1600	**205225**	4½	155	**148.00**	**205234**	4½	160	**178.00**	**205243**	6	182	**235.00**
50	1600	**205226**	4½	155	**150.00**	**205235**	4½	160	**182.00**	**205244**	6	182	**240.00**
75	1600	**205227**	4½	155	**150.00**	**205236**	4½	160	**182.00**	**205245**	6	182	**240.00**
100	1600	**205228**	4½	155	**150.00**	**205237**	4½	160	**182.00**	**205246**	6	182	**240.00**
150	1600	**205229**	4½	155	**166.00**	**205238**	4½	160	**200.00**	**205247**	6	182	**262.00**
200	1600	**205230**	4½	155	**170.00**	**205239**	4½	160	**205.00**	**205248**	6	182	**272.00**

UNDERVOLTAGE RELEASE ATTACHMENTS†‡

For Use Only when Ordered Complete with F-1 Weatherproof Breakers Only

Mfrs. No.	Description	Additional Price Mechanism Complete with Coil Voltage 110-220	Voltage 440-550
205249	Mechanism with Cover for 2 and 3 Pole, 750 Volt Breakers above....	**$39.00**	**$41.00**
205250	Mechanism with Cover for 4 Pole, 750 Volt Breakers above.....	**39.00**	**41.00**
205251	Mechanism for 2, 3 and 4 Pole, 4500 Volt Breakers above.....	**39.00**	**41.00**

For use with type F-1 weatherproof oil circuit breakers only; for accessories for use with other than type F-1 weatherproof breakers, refer to Small Oil Circuit Breaker Accessories.

AMMETER MOUNTING COVERS FOR TYPE F-1 WEATHERPROOF BREAKERS ONLY‡

These covers replace the covers ordinarily furnished and provide a suitable mounting for an ammeter. For 2 and 3 pole breakers, **$13.50** additional. For 4 pole breakers, **$14.80** additional. For use with type F-1 weatherproof oil circuit breakers only.

**The breakers can be supplied for conduit wiring on special order.

*Weight does not include oil. Shipping weight of oil is approximately 9 pounds per gallon.

†In ordering undervoltage release specify Mfrs. No. and state voltage and frequency of circuit. The standard voltage coils are 110, 220, 440 and 550 volts for 25 and 60 cycle circuits. Other voltages and frequencies are special with prices on application. For use on voltages over 750, specify 110 volt coil and order in addition the necessary voltage transformer.

‡Numbers of complete breakers with and without ammeter mounting cover and with and without undervoltage release attachment, listed on a following page.

WESTINGHOUSE TYPE F OIL CIRCUIT BREAKERS

TYPE F-1 WEATHERPROOF MANUALLY OPERATED—SINGLE THROW**

Series Trip Automatic Overload with Inverse Time Limit Attachment

WITHOUT AMMETER MOUNTING COVER—WITH UNDERVOLTAGE RELEASE ATTACHMENT‡

For Voltages Up to 750

Rating of Undervoltage Trip Coil		Approx. Ship. Wt.*	Manufacturer's Number										Price Each
25 Cycle	60 Cycle	Lbs.	5 Amp.	10 Amp.	15 Amp.	25 Amp.	50 Amp.	75 Amp.	100 Amp.	150 Amp.	200 Amp.	300 Amp.	
110	220	2 150	268761	268762	268763	268764	268765	268766	268767	268768	268769	268770	§
110	220	3 165	268771	268772	268773	268774	268775	268776	268777	268778	268779	268780	
110	220	4 185	268781	268782	268783	268784	268785	268786	268787	268788	268789	268790	
220	(440 or 550)	2 150	268791	268792	268793	268794	268795	268796	268797	268798	268799	268800	
220	(440 or 550)	3 165	268801	268802	268803	268804	268805	268806	268807	268808	268809	268810	
220	(440 or 550)	4 185	268811	268812	268813	268814	268815	268816	268817	268818	268819	268820	
440	.....	2 150	268821	268822	268823	268824	268825	268826	268827	268828	268829	268830	
440	.....	3 165	268831	268832	268833	268834	268835	268836	268837	268838	268839	268840	
440	.....	4 185	268841	268842	268843	268844	268845	268846	268847	268848	268849	268850	
550	.....	2 150	268851	268852	268853	268854	268855	268856	268857	268858	268859	268860	
550	.....	3 165	268861	268862	268863	268864	268865	268866	268867	268868	268869	268870	
550	.....	4 185	268871	268872	268873	268874	268875	268876	268877	268878	268879	268880	
.....	110	2 150	268881	268882	268883	268884	268885	268886	268887	268888	268889	268890	
.....	110	3 165	268891	268892	268893	268894	268895	268896	268897	268898	268899	268900	
.....	110	4 185	268901	268902	268903	268904	268905	268906	268907	268908	268909	268910	

For Voltages Up to 4500††

110	.....	2 165	268911	268912	268913	268914	268915	268916	268917	268918	268919	None	
110	.....	3 170	268920	268921	268922	268923	268924	268925	268926	268927	268928	None	
110	.....	4 192	268929	298930	268931	268932	268933	268934	268935	268936	268937	None	
.....	110	2 165	268938	268939	268940	268941	268942	268943	268944	268945	268946	None	
.....	110	3 170	268947	268948	268949	268950	268951	268952	268953	268954	268955	None	
.....	110	4 192	268956	268957	268958	268959	268960	268961	268962	268963	268964	None	

WITH AMMETER MOUNTING† COVER—WITH UNDERVOLTAGE RELEASE ATTACHMENT‡

For Voltages Up to 750

110	220	2 180	268965	268966	268967	268968	268969	268970	268971	268972	268973	268974	§
110	220	3 185	268975	268976	268977	268978	268979	268980	268981	268982	268983	268984	
110	220	4 205	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
220	(440 or 550)	2 180	268985	268986	268987	268988	268989	268990	268991	268992	268993	268994	
220	(440 or 550)	3 185	268995	268996	268997	268998	268999	269000	269001	269002	269003	269004	
220	(440 or 550)	4 205	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
440	.....	2 180	269005	269006	269007	269008	269009	269010	269011	269012	269013	269014	
440	.....	3 185	269015	269016	269017	269018	269019	269020	269021	269022	269023	269024	
440	.....	4 205	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
550	.....	2 180	269025	269026	269027	269028	269029	269030	269031	269032	269033	269034	
550	.....	3 185	269035	269036	269037	269038	269039	269040	269041	269042	269043	269044	
550	.....	4 205	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
.....	110	2 180	269045	269046	269047	269048	269049	269050	269051	269052	269053	269054	
.....	110	3 185	269055	269056	269057	269058	269059	269060	269061	269062	269063	269064	
.....	110	4 205	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	

For Voltages Up to 2200

110	.....	2 185	269085	269086	269087	269088	269089	269090	269091	269092	269093	None	
110	.....	3 190	269094	269095	269096	269097	269098	269099	269100	269101	269102	None	
110	.....	4 210	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
.....	110	2 185	269103	269104	269105	269106	269107	269108	269109	269110	269111	None	
.....	110	3 190	269112	269113	269114	269115	269116	269117	269118	269119	269120	None	
.....	110	4 210	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	

WITH AMMETER MOUNTING† COVER—WITHOUT UNDERVOLTAGE RELEASE ATTACHMENT

For Voltages Up to 750

None		2 170	269065	269066	269067	269068	269069	269070	269071	269072	269073	269074	
None		3 175	269075	269076	269077	269078	269079	269080	269081	269082	269083	269084	

For Voltages Up to 4500††

None		2 175	269121	269122	269123	269124	269125	269126	269127	269128	269129	None	
None		3 180	269130	269131	269132	269133	269134	269135	269136	269137	269138	None	

Interrupting Capacity—For interrupting capacity at rated voltage see corresponding breakers on previous page.

Oil—Two and three pole breakers require 4½ gallons of oil; four pole, 6 gallons.

**The breakers can be supplied for conduit wiring on special order.

*Weight does not include oil. Shipping weight of oil is approximately 9 pounds per gallon.

†Breaker numbers and weights do not include ammeter. Select type SM ammeter from another page. List prices do not include the ammeters. Breakers with ammeter mounting cover are not weatherproof.

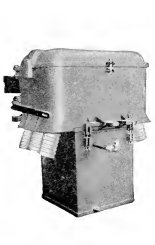
‡Other voltages and frequencies of undervoltage are special; prices on request. For use on voltages over 600 specify breaker with 110 volt coil and order in addition the necessary voltage transformers. See voltage transformers for number and prices.

§List price is the sum of the list prices of the corresponding breaker, ammeter mounting cover, and undervoltage release attachment listed on a preceding page.

††The voltage rating of 4500 refers to the type F-1 Weatherproof Oil Circuit Breaker rating given in table.

WESTINGHOUSE TYPE F OIL CIRCUIT BREAKERS

TYPE F-3 WEATHERPROOF—SINGLE THROW



The type F oil circuit breakers comprise a line of moderate capacity, non-automatic and automatic manually and electrically operated breakers for outdoor service in pole or subway mounting forms.

Among the features that distinguish the type F breakers are: Highly efficient form of wedge and finger type contacts. Auxiliary arcing contacts. Submersion and opening of all contacts under oil. Quick opening of contacts, assisted by arcing flip springs. Open position maintained by gravity. Inability to hold full automatic breaker in the closed position when an excessive overload or short circuit exists on the line. Strong tanks and tank supports. Tanks removable without disturbing the operating mechanism or contacts, making inspection easy. Ample air space at the top of the tank to allow for gas expansion. Insulating lining in the tanks. Isolation of poles by individual cells. Self-contained multipole hand or electric operated mechanism on the multipole single tank breakers.

The type F-3 breakers are listed both manually and electrically operated, in weatherproof cases two and three poles. They are listed for both full automatic and non-automatic operation. The full automatic breakers have series trip coils and adjustable inverse time element dashpots immersed in oil. They can be equipped with 5 ampere coils for use in direct connection with current transformers or relays for any reasonable tripping range.

Series Trip, Full Automatic with Inverse Time Element†

Maximum Continuous Amperes	Max. Volts	Amperes Interrupting Capacity at Rated Voltage	Manually Operated — Two Pole — Mfrs. No.	Manually Operated — Two Pole — Price Each	Manually Operated — Three Pole — Mfrs. No.	Manually Operated — Three Pole — Price Each	Electrically Operated — Two Pole — Mfrs. No.	Electrically Operated — Two Pole — Price Each	Electrically Operated — Three Pole — Mfrs. No.	Electrically Operated — Three Pole — Price Each
5	7500	500	**248236**	**$462.00**	**248237**	**$495.00**	**248238**	**$558.00**	**248239**	**$580.00**
10	7500	1000	**216951**	**462.00**	**216962**	**495.00**	**216901**	**558.00**	**216912**	**580.00**
25	7500	2500	**216952**	**462.00**	**216963**	**495.00**	**216902**	**558.00**	**216913**	**580.00**
50	7500	2900	**216953**	**462.00**	**216964**	**495.00**	**216903**	**558.00**	**216914**	**580.00**
75	7500	2900	**216954**	**462.00**	**216965**	**495.00**	**216904**	**558.00**	**216915**	**580.00**
100	7500	2900	**216955**	**462.00**	**216966**	**495.00**	**216905**	**558.00**	**216916**	**580.00**
150	7500	2900	**216956**	**462.00**	**216967**	**495.00**	**216906**	**558.00**	**216917**	**580.00**
200	7500	2900	**216957**	**462.00**	**216968**	**495.00**	**216907**	**558.00**	**216918**	**580.00**
300	7500	2900	**216958**	**462.00**	**216969**	**495.00**	**216908**	**558.00**	**216919**	**580.00**
500*	7500	2900	**216959**	**515.00**	**216970**	**585.00**	**216909**	**620.00**	**216920**	**685.00**
600*	7500	2900	**216960**	**550.00**	**216971**	**640.00**	**216910**	**675.00**	**216921**	**750.00**
800*	4500	4800	**216961**	**595.00**	**216972**	**695.00**	**216911**	**740.00**	**216922**	**820.00**
5	15000	500	**216973**	**495.00**	**216982**	**585.00**	**216931**	**615.00**	**216940**	**670.00**
10	15000	1000	**216974**	**495.00**	**216983**	**585.00**	**216932**	**615.00**	**216941**	**670.00**
15	15000	1400	**216975**	**495.00**	**216984**	**585.00**	**216933**	**615.00**	**216942**	**670.00**
25	15000	1400	**216976**	**495.00**	**216985**	**585.00**	**216934**	**615.00**	**216943**	**670.00**
50	15000	1400	**216977**	**495.00**	**216986**	**585.00**	**216935**	**615.00**	**216944**	**670.00**
75	15000	1400	**216978**	**495.00**	**216987**	**585.00**	**216936**	**615.00**	**216945**	**670.00**
100	15000	1400	**216979**	**495.00**	**216988**	**585.00**	**216937**	**615.00**	**216946**	**670.00**
150	15000	1400	**216980**	**495.00**	**216989**	**585.00**	**216938**	**615.00**	**216947**	**670.00**
200	15000	1400	**216981**	**495.00**	**216990**	**585.00**	**216939**	**615.00**	**216948**	**670.00**
					Non-Automatic†					
200	7500	2900	**248240**	**412.00**	**248241**	**440.00**	**248242**	**500.00**	**248243**	**525.00**
300	7500	2900	**221970**	**412.00**	**221974**	**440.00**	**216923**	**500.00**	**216927**	**525.00**
500	7500	2900	**221971**	**435.00**	**221975**	**462.00**	**216924**	**525.00**	**216928**	**545.00**
600	7500	2900	**221972**	**455.00**	**221976**	**512.00**	**216925**	**545.00**	**216929**	**595.00**
800	4500	4800	**221973**	**525.00**	**221977**	**595.00**	**216926**	**635.00**	**216930**	**675.00**
200	15000	1400	.....	.....	.....	.....	**216949**	**575.00**	**216950**	**645.00**

Amount of oil for electrically operated breakers, 4500 and 7500 volts, two or three pole, is 13 gallons; approximate shipping weight two pole, 600 pounds; three pole, 613 pounds. Weight does not include oil. Shipping weight of oil is approximately 9 pounds per gallon.

Dimensions, weights and amount of oil for 15,000 volt breakers will be supplied on request.

†Full automatic breakers can be supplied on special order with 5 ampere trip coils for transformer trip. Price same as listed for 10 ampere series trip breaker above.

*Equipped with current transformers, self-contained, which energize the trip coil, or coils, proper.

TYPE F-3 WEATHERPROOF OIL CIRCUIT BREAKER UNDERVOLTAGE RELEASE ATTACHMENT

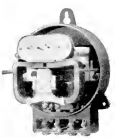
Price includes the undervoltage release attachment complete with coil. In ordering specify mechanism from above with proper coil for voltage and frequency required. The coil Mfrs. Nos. will be found under the listings of the type F-33 indoor breakers.

For Use Only When Ordered Complete with Breaker

Mfrs. No.	Mechanism	Price Each
363424	For Hand Operated Breaker.....	**$45.00**
363425	For Electrically Operated Breaker	**50.00**

WESTINGHOUSE WATTHOUR METERS
TYPE OA—ALTERNATING CURRENT

Single-Phase


Cover Removed

Glass Cover

Polyphase

The type OA watthour meters operate on the induction principle. The torque that rotates the disk is proportional to the product of voltage, current and power factor of the circuit, and is counterbalanced by a retarding force exactly proportional to the speed. The speed of rotation is, therefore, proportional to the power in the circuit.

Distinctive Features

Mechanical—One piece cast iron base; all parts mounted on central cast iron frame; perfect dustproofing; covers easily removed and sealed; ball bearing moving element; two permanent magnets clamped together as a unit; low speed worm.

Electrical—High ratio of torque to weight of moving element, insuring long life accuracy; accurate within close limits over a wide range; accurate on varying voltage; accurate on varying frequency; not affected by wave form, power factor or external fields; permanent magnets shielded from electromagnets; low shunt loss.

Arrangement—Four index dial arranged in straight line; micrometer full load adjustment; both light and full load adjustments accessible from front of meter and only a screwdriver required; meter cover need not be removed at installation; shunt field connections made in terminal chamber.

Construction

All parts of the meter element are mounted on a supporting casting and can be removed from the case as a unit without changing the calibration. The moving element is of the disk type, acted on by the electromagnets at one edge and the permanent magnets at the opposite edge. The electromagnet punchings are in one ipece, and shifting of one part with reference to another is thus obviated. They form a closed magnetic circuit, a feature that makes the meter remarkably free from the effects of stray fields.

Case and Cover—The case is of cast iron and the covers of pressed zinc with dead black finish, or of glass. The cover is fitted with a dust proof gasket and the glass windows are sealed. These precautions absolutely prevent the entrance of dust, which would in time cause friction errors.

Terminal Chamber—A separately sealed terminal chamber is provided, separated by a dust proof partition from the meter chamber. The main cover does not have to be removed at installation, and no dust can enter the meter in making the connection. Leads enter at the bottom in the single phase meters, and at the sides in the polyphase.

Register—The registering mechanism is designed for minimum friction. The sub-gear train is provided with je wel step bearings.

Ratchet Attachment—A ratchet attachment to prevent backward registration will be furnished for a net additional price of **$1.00** if ordered with meter.

Bearings—The main (lower) bearing is a highly polished and hardened steel ball resting between two sapphire cup jewels. The minute gyrations of the shaft give the ball a rolling action which makes a very low coefficient of friction and, by presenting constantly new bearing surface, gives an extremely long life. The upper bearing is a self oiling guide bearing.

Torque and Weight—The ratio of torque to weight in type OA meters is very high, insuring a long life and freedom from friction errors for long periods. A higher torque or lower weight of disk would require permanent magnets of greater strength than long experience has indicated as practicable without danger of weakening.

Connections—Both line and load sides of the circuit are brought into the terminal chamber, and the shunt connection is in this chamber. Left-hand feed is standard.

Adjustments—The ends of the permanent magnet support slide in machined grooves and are each clamped by two screws. This prevents deflecting the magnets in tightening the clamping screws after making micrometer full load adjustment. A micrometer light load adjustment, absolutely independent of current, is provided. The only tool required to make adjustments is a screwdriver.

Three-wire, single-phase, meters are identical in appearance with the two-wire. The rated current is that in each outside wire.

Polyphase Meters

Polyphase type OA meters are based on the same mechanical and electrical principles that have made the single-phase meters so successful. Each meter is in reality two single-phase meter elements supported on one mounting frame, both moving elements being mounted on a common shaft and driving a common register.

When properly connected, these meters indicate the true power in a two-phase three-wire or four-wire, or a three-phase three-wier circuit, regardless of the power factor or the degree of unbalance between phases.

Capacity—The rated current capacity of the polyphase meter is that in each wire of the circuit; the rated voltage is that across each phase.

Approximate Dimensions and Weights

	Dimensions, In.			Weight	
	Width.	Hight.	Depth.	Net	Boxed
Single-Phase Meters..	6½	8⅞	6½	9½	11
Polyphase Meters.....	10	12	5¾	29	36

For prices of single-phase and polyphase type OA meters see following pages.

WESTINGHOUSE WATTHOUR METERS

TYPE OA—ALTERNATING CURRENT
SINGLE-PHASE SELF CONTAINED METERS
Left-Hand Feed

Number and list price include meter complete with metal or glass cover as listed, ready for installation.

Two-Wire

Capacity			25-Cycles Mfrs. No.		40-Cycles Mfrs. No.		60-Cycles Mfrs. No.		
Volts	Amps.	Kw.	Metal Cover	Glass Cover	Metal Cover	Glass Cover	Metal Cover	Glass Cover	Price Each
100	5	.5	183723	183763	170780	170790	161363	161373	$10.20
100	10	1	183729	183764	170781	170791	161364	161374	11.80
100	15	1.5	183730	183765	170782	170792	170818	170824	14.40
100	25	2.5	183732	183767	170784	170794	170820	170826	17.40
100	50	5	227216	227225	224769	224793	224817	224851	23.80
100	75	7.5	227217	227226	224770	224794	224818	224852	27.50
100	100	10	183736	183771	224771	224795	224819	224853	30.15
100	150	15	227218	227227	224772	224796	224820	224854	32.50
100	200	20	183738	183773	224773	224797	224821	224855	33.50
100	300	30	183739	183774	224774	224798	224882	224856	34.20
200	5	1	183740	183775	195521	195549	195570	195582	12.50
200	10	2	183741	183776	195522	195550	195571	195583	13.10
200	15	3	183742	183777	195523	195551	195572	195584	15.75
200	25	5	183744	183779	195525	195553	195574	195586	19.10
200	50	10	227219	227228	224775	224799	224823	224857	25.80
200	75	15	227220	227229	224776	224800	224824	224858	29.50
200	100	20	183748	183783	224777	224801	224825	224859	32.15
200	150	30	227221	227230	224778	224802	224826	224860	34.85
200	200	40	183750	183785	224779	224803	224827	224861	36.20
200	300	60	183751	183786	224780	224804	224828	224862	36.90
400	5	2	195391	195403	195415	195427	195463	195475	13.85
400	10	4	195392	195404	195416	195428	195464	195476	15.75
400	15	6	195393	195405	195417	195429	195465	195477	17.50
400	25	10	195395	195407	195419	195431	195467	195479	21.15
400	50	20	227222	227231	224781	224805	224829	224863	28.20
400	75	30	227223	227232	224782	224806	224830	224864	31.90
400	100	40	195399	195411	224783	224807	224831	224865	34.60
400	150	60	227224	227233	224784	224808	224832	224866	37.75
400	200	80	195401	195413	224785	224809	224833	224867	39.70
400	300	120	195402	195414	224786	224810	224834	224868	40.40

500 volt 60 cycle meters can be supplied on special order at the same price as 400 volt meters of the same ampere capacity.

Three-Wire

100–200	5	1	183752	183787	170785	170795	161367	161377	12.50
100–200	10	2	183753	183788	170786	170796	161368	161378	13.10
100–200	15	3	183754	183789	170787	170797	170821	170827	15.75
100–200	25	5	183756	183791	170789	170799	170823	170829	19.10
100–200	50	10	227234	227236	224789	224813	224847	224881	25.80
100–200	75	15	227235	227237	224790	224814	224848	224882	29.50
100–200	100	20	183760	183795	224791	224815	224849	224883	32.15
100–200	150	30	183762	183797	224792	224816	224850	224884	34.85

133 cycle meters can be supplied on special order at same price as 60 cycle meters.

SINGLE-PHASE METERS FOR USE WITH TRANSFORMERS
Left-Hand Feed

These meters are arranged for use with current transformers with 5 ampere secondaries, for current capacities higher than those listed in the preceding table. The 100 volt meters listed below can be used with voltage transformers with 100 volt secondaries for voltages higher than those listed.

Number and list price include 5 ampere meter of the voltage listed, for use with transformers, but do not include transformers. When a meter is desired with register reading directly in kilowatt-hours in the primary circuit, it should be ordered as: "Meter similar to No. (give Mfrs. No. of 100 volt meter from the following table), except with register for..... /5 ampere and..... /100 volt transformer;" or "Meter similar to No. (give Mfrs. No. of 200 or 400 volt meter from the following table), except with register for..... /5 ampere transformer." Price for the meter with register as ordered will be the same as for meter listed. Transformers should be added at regular prices.

Two Wire

Capacity			25-Cycles Mfrs. No.		40-Cycles Mfrs. No.		60-Cycles Mfrs. No.		
Volts	Amps.	Kw.	Metal Cover	Glass Cover	Metal Cover	Glass Cover	Metal Cover	Glass Cover	Price Each
100	5	.5	183954	183957	195533	195561	183960	183963	$13.90
200	5	1	183955	183958	195534	195562	183961	183964	15.25
400	5	2	.....	.....	224787	224811	224845	224879	16.85

Three Wire

100–200	5	1	183956	183959	195541	195569	183962	183965	15.25

133 cycle meters can be supplied on special order at same price as 60 cycle meters.

WESTINGHOUSE WATTHOUR METERS

TYPE OA—ALTERNATING CURRENT

POLYPHASE SELF-CONTAINED METERS

Left-Hand Feed

The number and list price include self-contained meter only, which does not require either voltage or current transformers. Meters as listed are for two-phase or three-phase, three-wire circuits and have metal covers.

100 Volts

Current Per Wire Amp.	Kw.	Mfrs. No. 25-Cycle	Mfrs. No. 40-Cycle	Mfrs. No. 60-Cycle	Price Each
5	1	**230486**	**224296**	**224329**	**$34.40**
10	2	**230487**	**224297**	**224330**	**37.05**
15	3	**230488**	**224298**	**224331**	**39.25**
25	5	**230489**	**224299**	**224332**	**42.35**
50	10	**230490**	**224300**	**224333**	**48.50**
75	15	**230491**	**224301**	**224334**	**52.90**
100	20	**230492**	**224302**	**224335**	**56.10**
150	30	**230493**	**224303**	**224336**	**60.00**
200	40	**230494**	**224304**	**224337**	**63.50**
300	60	**230495**	**224305**	**224338**	**70.55**

200 Volts

Current Per Wire Amp.	Kw.	Mfrs. No. 25-Cycle	Mfrs. No. 40-Cycle	Mfrs. No. 60-Cycle	Price Each
5	2	**230496**	**224306**	**224339**	**$38.80**
10	4	**230497**	**224307**	**224340**	**41.45**
15	6	**230498**	**224308**	**224341**	**43.65**
25	10	**230499**	**224309**	**224342**	**46.75**
50	20	**230500**	**224310**	**224343**	**52.90**
75	30	**230501**	**224311**	**224344**	**57.30**
100	40	**230502**	**224312**	**224345**	**60.50**
150	60	**230503**	**224313**	**224346**	**64.40**
200	80	**230504**	**224314**	**224347**	**67.90**
300	120	**230505**	**224315**	**224348**	**74.95**

400 Volts

Current Per Wire Amp.	Kw.	Mfrs. No. 25-Cycle	Mfrs. No. 40-Cycle	Mfrs. No. 60-Cycle	Price Each
5	4	**230506**	**224316**	**224349**	**46.75**
10	8	**230507**	**224317**	**224350**	**49.40**
15	12	**230508**	**224318**	**224351**	**51.60**
25	20	**230509**	**224319**	**224352**	**54.70**
50	40	**230510**	**224320**	**224353**	**60.85**
75	60	**230511**	**224321**	**224354**	**65.25**
100	80	**230512**	**224322**	**224355**	**68.45**
150	120	**230513**	**224323**	**224356**	**72.35**
200	160	**230514**	**224324**	**224357**	**75.85**
300	240	**230515**	**224325**	**224358**	**82.90**

500 Volts

Current Per Wire Amp.	Kw.	Mfrs. No. 25-Cycle	Mfrs. No. 40-Cycle	Mfrs. No. 60-Cycle	Price Each
5	5	.....	.....	**224359**	**46.75**
10	10	.....	.....	**224360**	**49.40**
15	15	.....	.....	**224361**	**51.60**
25	25	.....	.....	**224362**	**54.70**
50	50	.....	.....	**224363**	**60.85**
75	75	.....	.....	224364	**65.25**
100	100	.....	.....	**224365**	**68.45**
150	150	.....	.....	**224366**	**72.35**
200	200	.....	.....	**224367**	**75.85**
300	300	.....	.....	**224368**	**82.90**

133 cycle meters can be supplied on special order at same price as 60 cycle meters.

Glass covers will be supplied on meters instead of metal covers without extra charge. Order "similar to Mfrs. No..... except to have glass cover."

Meters for three-phase, four-wire circuits can be furnished self-contained in capacities of 5-25 amperes inclusive, above which size it is necessary to use a transformer type of meter with three current transformers. In either case specify in the order that the meter is for a three-phase four-wire circuit, giving current capacity, frequency and voltage between neutral and each phase and across phases.

Prices for self-contained three-phase four-wire watthour meters for 100 volts Y connected will be the same as for standard listed 200 volt meters of corresponding current capacity, and for 200 volts Y connected, prices will be the same as for 400 volt standard listed meters of corresponding current capacity. Prices for transformer type three-phase four-wire watthour meters will be the same as for standard listed transformer type meters.

POLYPHASE METERS FOR USE WITH TRANSFORMERS

These meters are arranged for use with current transformers with 5 ampere secondaries, for current capacities higher than those listed in the preceding table. The 100 volt meters listed below can be used with voltage transformers with 100 volt secondaries for voltages higher than those listed.

Number and list price include 5 ampere meter of the voltage listed, for use with transformers, but do not include transformers. When a meter is desired with register reading directly in kilowatthours in the primary circuit, it should be ordered as: "Meter similar to No. (give Mfrs. No. of 100 volt meter from the following table) except with register for ...../5 ampere and...../100 volt transformer;" or "Meter similar to No. (give Mfrs. No. of 200, 400 or 500 volt meter from the following table), except with register for...../5 ampere transformer." Price for the meter with register as ordered will be the same as for meter listed. Transformers should be added at regular prices.

Volts	Amps.	Kw.	Mfrs. No. 25-Cycle	Mfrs. No. 40-Cycle	Mfrs. No. 60-Cycle	Price Each
100	5	1	**230516**	**224326**	**224369**	**$34.40**
200	5	2	**230517**	**224327**	**224370**	**38.80**
400	5	4	**230518**	**224328**	**224371**	**46.75**
500	5	5	.....	.....	**224372**	**46.75**

133 cycle meters can be supplied on special order at same price as 60 cycle meters.

WESTINGHOUSE WATTHOUR METERS
TYPE OA SINGLE-PHASE
With Prepayment Attachment and Cover

By means of the prepayment attachment a standard OA single-phase watthour meter can be converted into a prepayment meter, or when it is no longer desired as a prepayment meter, it can be changed back to a standard watthour meter by replacing the standard register and cover. The attachment mechanism is entirely mechanical. By placing a quarter in the top of the coin chamber and by turning the knob in the direction of the arrow the meter is made ready to give electrical service as required by the consumer. This operation of the knob winds a clock spring which is unwound by gears at a speed depending upon the rate per kilowatt hour for which the attachment is furnished. When the spring is completely unwound a quick-break switch is automatically opened and the customer is without power until additional quarters have been placed in the coin mechanism. The attachment can be supplied for rates of 4 to 25 cents per kilowatt hour (full cents only). Specify rate desired.

With the aid of the scale marked on the cover and surrounding the indicating dial it is possible to determine the number of quarters that have been placed in the meter, by observing the position of the zero on the dial with reference to the numbers on the fixed scale on the cover. Knowing the number of quarters and the rate per kilowatt hour, the number of kilowatt hours can be determined. If it is not desirable to determine in this manner the kilowatt hours used by the consumer, the attachment can be supplied with a small three-dial register reading direct in kilowatt hours.

TWO-WIRE

Type OA single-phase watthour meter complete with prepayment attachment and cover.

Without Integrating Dials

			25 Cycles		60 Cycles	
Amp.	Volts	Kw.	Mfrs. No.	Price Each	Mfrs. No.	Price Each
5	100	.5	**293309**	**$21.00**	**293311**	**$20.00**
10	100	1.0	**293313**	**23.00**	293315	22.00
5	200	1.0	**293317**	**22.00**	293319	21.00
10	200	2.0	**293321**	**24.00**	293323	23.00
			With Integrating Dials			
5	100	.5	**293310**	**23.00**	**293312**	**22.00**
10	100	1.0	**293314**	**25.00**	**293316**	**24.00**
5	200	1.0	**293318**	**24.00**	**293320**	**23.00**
10	200	2.0	**293322**	**26.00**	**293324**	**25.00**

PREPAYMENT ATTACHMENT AND COVER
TWO-WIRE

Price includes prepayment attachment and cover only for type OA single-phase watthour meters.

Without Integrating Dials

Mfrs. No.	Meter Amp.	Meter Volts	Prepayment Attach. Kw.	Price Each
293303	5	100	.5	**$11.00**
293305	10	100	1.0	**11.00**
293305	5	200	1.0	**11.00**
293307	10	200	2.0	**11.00**
		With Integrating Dials		
293304	5	100	.5	**12.00**
293306	10	100	1.0	**12.00**
293306	5	200	1.0	**12.00**
293308	10	200	2.0	**12.00**

Note.—Prepayment attachments can be supplied for the following rates: 4, 5, 6, 7, 8, 9, 10, 12, 14, 15, 6, 18, 20 and 25 cents per kilowatt hour. When ordering specify rate desired.

WESTINGHOUSE WATTHOUR METERS
TYPE OA DEMAND ATTACHMENTS
For Polyphase Watthour Meters

Type OA demand attachment is a watthour meter register which combines the regular watthour meter register with the scale and pointers of an indicating demand meter. By replacing the register and the cover of a standard polyphase OA watthour meter with this new attachment and a special cover, the type OA watthour meter is converted into an indicating, block-interval demand meter. After this change has been made, the meter will indicate the maximum kilowatt demand and the integrated kilowatt hours.

The 3¼ inch scale of the demand attachment is comparatively long considering the available space. Full scale deflection of the demand pointer is approximately 100 degrees.

The demand scale is marked directly in kilowatts demand, but the watthour recording dials are used with the register constant of 10 or multiples of 10 where necessary, similar to the practice followed with the standard type OA watthour meter register.

When ordering demand attachments or complete meters with attachment for two-phase or three-phase four-wire circuits select one of the following styles and have order read "Similar to No. —— except for two-phase (or three-phase four-wire) circuits." Price includes demand attachment and cover only.

25 Cycles—100 Volts

METAL COVER	GLASS COVER				
—Mfrs. No.—		—Mfrs. No.—			
15-Minute Interval	30-Minute Interval	15-Minute Interval	30-Minute Interval	Amps.	Kw.	Price Each
328742	**328748**	**328754**	**328760**	5	1	**$20.00**
328743	**328749**	**328755**	**328761**	10	2	**20.00**
328744	**328750**	**328756**	**328762**	15	3	**20.00**
328745	**328751**	**328757**	**328763**	25	5	**20.00**
328746	**328752**	**328758**	**328764**	50	10	**20.00**
328747	**328753**	**328759**	**328765**	75	15	**20.00**
		60-Cycles—100 Volts				
328766	328772	328778	328784	5	1	**20.00**
328767	328773	328779	328785	10	2	20.00
328768	328774	328780	328786	15	3	20.00
328769	328775	328781	328787	25	5	20.00
328770	328776	328782	328788	50	10	20.00
328771	328777	328783	328789	75	15	20.00
		60 Cycles—200 Volts				
328790	328796	328802	328808	5	2	**20.00**
328791	328797	328803	328809	10	4	**20.00**
328792	328798	328804	328810	15	6	**20.00**
328793	328799	328805	328811	25	10	**20.00**
328794	328800	328806	328812	50	20	20.00
328795	328801	328807	328813	75	30	20.00
		25 Cycles—200 Volts				
356572	356592	356620	356632	5	2	25.00
356573	356597	356621	356633	10	4	25.00
356574	356598	356622	356634	15	6	25.00
356575	356599	356623	356635	25	10	25.00
356576	356600	356624	356636	50	20	25.00
356577	356601	356625	356637	75	30	25.00
		60 Cycles—400 Volts				
356582	356606	356626	356638	5	4	25.00
356583	356607	356627	356639	10	8	25.00
356584	356608	356628	356640	15	12	25.00
356585	356609	356629	356641	25	20	25.00
356586	356610	356630	356642	50	40	25.00
356587	356611	356631	356643	75	60	25.00

WESTINGHOUSE WATTHOUR METERS

TYPE RA RECORDING-DEMAND WATTHOUR METERS—POLYPHASE

The type RA recording-demand watthour meter in one unit measures both the kilowatt-hours consumed and the integrated demand. It indicates on a four-counter dial the total kilowatt-hours consumed and records in a permanent form the integrated demand over successive predetermined time intervals. Because of its simplicity and exceptional reliability, it is especially applicable for determining the demand of power installations, particularly where a permanent record of the demand, involving the time and length of occurrence, is wanted. By using meters with synchronous-motor clocks two or more meters may be kept in exact synchronism and simultaneous demands at various points of a system may be recorded. The rated current capacity is that in each wire of the circuit; the rated voltage is that across each phase. The indicating mechanism is arranged so that full scale deflection is 50 per cent overload on the meter.

Polyphase meters—The standard type RA meters are all polyphase having virtually two independent single-phase electrical elements enclosed in the same case, with the watthour register and the demand recording devices in common. As with the polyphase type OA watthour meter, the two torque elements are on the same shaft so that, each exerting its torque on the shaft, the total rotative torque is proportional to the total power in the metered phases. The meter, therefore, when properly connected, records the true power in a two-phase 3 or 4-wire or a three-phase 3-wire circuit, regardless of power factor or the degree of unbalance between phases.

Approximate dimensions—Width, 10½ inches; height, 13⅝ inches; depth, 6¾ inches. Net weight, 30 pounds; boxed, 85 pounds.

FOR USE WITH TRANSFORMERS

For 25-Cycle Circuits

			With Hand-Wound Clocks — Mfrs. No.			†††With Synchronous-Motor Clocks — Mfrs. No.				
Volts	Amps.	Kw.	5-Minute Interval	15-Minute Interval	30-Minute Interval	60-Minute Interval	5-Minute Interval	15-Minute Interval	30-Minute Interval	60-Minute Interval	Price Each
100	5	1	258088	258097	258106	258115	375600	375601	375602	375603	$140.00
100*	5	1.5	276336	276338	276340	276342	375616	375617	375618	375619	155.00
200	5	2	258089	258098	258107	258116	.....	.....	.....	.....	145.00
400	5	4	258090	258099	258108	258117	.....	.....	.....	.....	150.00

For 40-Cycle Circuits

100	5	1	258091	258100	258109	258118	.....	.....	.....	.....	140.00
200	5	2	258092	258101	258110	258119	.....	.....	.....	.....	145.00
400	5	4	258093	258102	258111	258120	.....	.....	.....	.....	150.00

For 60-Cycle Circuits

100	5	1	258094	258103	258112	258121	375604	375605	375606	375607	140.00
100*	5	1.5	276337	276339	276341	276343	375620	375621	375622	375623	155.00
200	5	2	258095	258104	258113	258122	375608	375609	375610	375611	145.00
400	5	4	258096	258105	258114	258123	375612	375613	375614	375615	150.00
500	5	5	364257	364258	364259	364260	.....	.....	.....	.....	155.00

†††Synchronous clocks for certain other voltages and frequencies can be supplied on special order.

ACCESSORIES FOR TYPE RA DEMAND METERS

RECORD PAPER

Volts	Amps.	Kw. (full load)	Mfrs. No. — 5-Minute Interval	15, 30 and 60-Minute Interval	Price Per Roll
100	5	1	286931††	237204	$0.35
200	5	2	286932††	263096	.35
400	5	4	286933††	263097	.35
500	5	5	375087††	357263	.35
100**	5	1.5	375078††	280943	.35

GEAR TRAINS

Volts	Amps.	Kw.	Mfrs. No. — 5-Minute Interval	15-Minute Interval	30-Minute Interval	60-Minute Interval	Price Each
100	5	1	258366	258369	258372	258375	$10.00
200	5	2	258367	258370	258373	258376	10.00
400	5	4	258368	258371	258374	258377	10.00
100**	5	1.5	364253	364254	364255	364256	10.00

PEN AND INK

Mfrs. No.	Description	Price Each
276387	Pen and Pen Arm Complete	$0.75
256332	Red Ink, Per 2 Ounce Bottle	.35
321361	Blue Print Red Ink, Per 2 Ounce Bottle	.35

*These meters are equipped with ten terminals, special gear trains, and current coils for three-phase four wire circuits.

**For three-phase four-wire meters only.

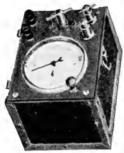
†Orders not accepted for less than ten rolls of paper or for less than four bottles of ink on one order.

††Charts must be renewed every twelve days. The 5-minute chart advances ¾ inch per hour.

WESTINGHOUSE WATTHOUR METERS

TYPE OA STANDARD PORTABLE

Single-Phase or Polyphase



Single-Phase
With Cover Removed

Checking serviee meters with a portable standard watthour meter eliminates the use of a stop wateh and makes the calibration very simple. As the number of revolutions made by the meter under test is compared directly with the number of revolutions made by the standard meter in the same time, the result indicates by very simple ealculation the condition of the serviee meter. Moreover, both meters being eonneeted in series, it is not neeessary to keep the test load absolutely eonstant. The ease is made of miearta-duek material reinforced at the edge and eorners with miearta-duek angles, held by rivets. Leather handles have been replaeed by handles of metal and a molded glass top assures a well-lighted dial and dust-proofing. A zero reset, whieh returns both the large and small pointer to zero, is provided with this meter.

At normal load the pointer on the large dial revolves 25 times per minute and the pointer on the small dial onee per minute. The small dial is subdivided into 25 divisions, eaeh eorresponding to a revolution of the main meter shaft, or a revolution of the large dial pointer; the large dial is subdivided into 100 divisions.

The eurrent and voltage setting is aeeomplished by means of a drum switeh to whieh voltage and current coil leads are eonnected. Its ealibration is guaranteed to be as per data furnished with the meter when it leaves the factory. This ealibration is subjeeted to variation, however, like any other meter used for similar purpose, due to the rough usage the meter is bound to reeeive in transportation and in serviee.

Dimensions and weights: Single-phase, 5⅝x7¼x6⅝ inches, 10 pounds. Polyphase, 5⅞x8x11⅛ inehes, approximate weight, 18 pounds.

List priees include meter complete with flexible leads and push button switeh.

Single-Phase

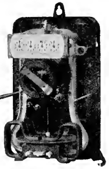
Mfrs. No. 25-Cycle	Mfrs. No. 60-Cycle	Volts	Full Load Amperes	Price Each
362656	362652	100-200	1- 5-10-20-40	$90.00
362657	362653	200-400	1- 5-10-20-40	95.00
362658	362654	100-200	1-10-20-40-80	100.00
362659	362655	200-400	1-10-20-40-80	105.00

Polyphase

Mfrs. No. 25-Cycle	Mfrs. No. 60-Cycle	Volts	Full Load Amperes	Price Each
362664	362660	100-200	1 -5-10-20-40	165.00
362665	362661	200-400	1- 5-10-20-40	175.00
362666	362662	100-200	1-10-20-40-80	185.00
362667	362663	200-400	1-10-20-40-80	195.00

WESTINGHOUSE WATTHOUR METERS

TYPE CW-6—DIRECT CURRENT



With Cover Removed

Meters are of the eommutator type without iron in the magnetie eireuit. The spherieal armature is elosely surrounded by eireular field eoils. Uniform brush tension at all degrees of wear is seeured by making the brush tension dependent entirely upon gravity. Eaeh brush eonsists of two small round wires held against the eommutator by a small adjustable eounterweight. Brushes and eommutator are made of non-oxidizable material. The eurrent winding eonsists of two flat eoils of strap eopper eonneeted either in series or in parallel, depending on the eapaeity. In three-wire meters one of the eoils is eonneeted in series with each side of the line. The mounting frame is east of very hard and tough aluminum alloy, strong and rigid. This frame supports all of the meter meehanism. This eonstruetion makes it possible to remove the entire meter as a unit, without disturbing the adjustment.

The main bearing of type CW-6 meters is an improved form of ball bearing, eonsisting of a one-sixteenth ineh, highly polished steel ball between two sapphire eup jewels, one spring mounted and the other in a removable sleeve on the shaft. In operation this bearing has a rolling action that reduces frietion and inereases the life.

Overall dimensions: Width 7½ inehes, height 13 inehes, depth 6¾ inehes. Approximate net weight 13 pounds, boxed 32 pounds.

2-Wire

Cap. Amp.	100-120 Volts Mfrs. No	100-120 Volts Price Each	200-240 Volts Mfrs. No.	200-240 Volts Price Each
5	162548	$24.60	162558	$27.75
10	162549	26.20	162559	31.75
15	162550	29.35	162560	37.30
25	162551	34.90	162561	42.85
50	162552	46.05	162562	54.35
75	162553	57.15	162563	65.90
100	162554	67.45	162564	77.35
150	162555	87.35	162565	99.35
300	162556	111.25	162566	127.00
600	162557	158.75	162567	178.50

Cap. Amp.	2-Wire 500-600 Volts Mfrs. No.	2-Wire 500-600 Volts Price Each	3-Wire 200-240 Volts Mfrs. No.	3-Wire 200-240 Volts Price Each
5	244456	$35.70	162568	$27.75
10	244457	41.25	162569	31.75
15	244458	47.60	162570	37.30
25	244459	55.55	162571	42.85
50	244460	67.45	162572	56.35
75	244461	79.35	162573	69.90
100	244462	91.25	162574	83.35
150	244463	115.10	162575	107.15
300	244464	150.80	162576	146.80
600	244465	206.35	....	....

Three-wire meters are for use on cireuits of 100-120 volts between neutral and outside wire.

AUSTIN METER SEALING TOOLS AND SEALS

METER SEALING TOOLS

No. 888

The Austin meter sealing tool is only 6½ inches in length, therefore, easy to carry in the pocket and yet, the specially designed compound lever makes it one of the most practical tools of its kind. Can be furnished with engraved letters or numbers if specified.

With Blank Dies

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Oz.	Price Each
888	1	1	14	**$6.50**

With One Die Blank and One Die Engraved with One Letter or One Numeral

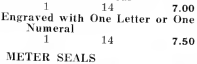
8881	1	1	14	**7.00**

With Both Dies Engraved with One Letter or One Numeral

8882	1	1	14	**7.50**

METER SEALS

Austin meter seals are made of four-strand No. 30 soft tinned wire in three sizes, specially designed for sealing meters.



No. 1224

Mfrs. No.	Size In.	Unit Pkg.	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Per 1000
1224	4	1000	5000	7	**$4.00**
1226	6	1000	5000	7½	**4.50**
1228	8	1000	5000	8	**5.00**

PAPER FOR USE WITH TYPE R RECORDING INSTRUMENTS

Standard Paper—Graphic instrument paper is supplied in rolls of 248 feet. A roll is sufficient for 62 days' record at the rate of 2 inches per hour, 31 days at 4 inches per hour, or 15½ days at 8 inches per hour.

One roll of standard paper is supplied with each instrument without extra charge.

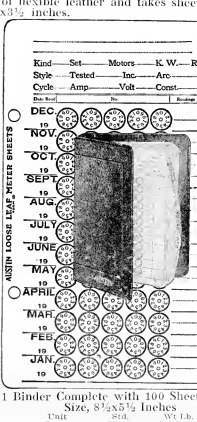
"Blank" paper has ruling same as other styles, the time and capacity numbers being omitted, permitting use of this paper for special purposes. The prices are the same as for standard paper.

Special Paper—All instrument paper is considered special which has markings different from those listed. The "special" paper is intended to cover capacities not covered by "standard," but is not intended for obtaining special markings, numberings, and so forth, where the standard paper will answer equally well, nor will special colored ink markings or special length or quality of paper be furnished under terms listed for "special" paper.

Special paper rolls have the same length as standard rolls and will not be supplied in lots of less than 100 rolls. On orders for special paper we reserve the right in filling orders to deliver 2 rolls over or under quantity ordered according to run of press. Billing will be according to actual number of rolls delivered. Prices quoted on application.

AUSTIN METER BOOKS

Austin Meter Books are equipped with the celebrated L. P. adjustable nickel plated binder, which permits the book to be opened flat at any point for the removal or insertion of sheets without in any manner disturbing the other sheets. The standard size is cloth bound with leather backs and corners, and takes the Austin standard size sheets, 8½x5½ inches. The pocket edition is made up of flexible leather and takes sheets measuring 5½x3½ inches.



No. 1 Binder Complete with 100 Sheets, Standard Size, 8½x5½ Inches

Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
1-C	1	12	21	**$3.25**

No. 2 Binder Complete with 200 Sheets, Standard Size, 8½x5½ Inches

1-O	1	12	28	**4.30**

No. 1 Binder Only, Cloth Bound, Leather Backs and Corners

2-C	1	12	9	**2.50**

No. 2 Binder Only, Cloth Bound, Leather Backs and Corners

2-O	1	12	10	**2.80**

†Meter Sheets, 8½x5½ Inches, Standard Size, Form No. 100

100	500	2500	15	**.75**

‡Linen Tabbed Indexes Extra for Nos. 1 and 2 Binders

12-I	1	12	2	**1.10**

*No. 3 Flexible Leather Pocket Binders with 100 Sheets, 5½x3½ Inches

3-C	1	12	6½	**3.00**

No. 3 Flexible Leather Pocket Binders Only

3-O	1	12	4	**2.50**

†Extra Sheets 5½x3½ Inches for No. 3 Binder, Form No. 10

10	500	2500	5	**.60**

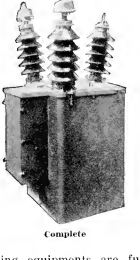
‡Linen Tabbed Indexes for No. 3 Binder

3-I	1	12	1½	**.85**

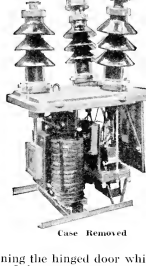
†Price per 100 sheets.
‡Price per set.
*Capacity 150 Sheets.

All orders for books or sheets will be filled with standard size unless otherwise expressly stipulated

WESTINGHOUSE OUTDOOR METERING EQUIPMENT



Complete



Case Removed

These metering equipments are furnished enclosed in weatherproof casings, for supplying service from high voltage transmission lines, where the expense of a substation is not warranted.

Construction—Each equipment consists of a standard polyphase watthour meter, two current transformers, a polyphase voltage transformer and three choke coils to protect the transformer windings against high frequency disturbances; all enclosed in a sheet steel case with cast iron cover. The sheet steel case is subdivided into two compartments, one of which is filled with oil in which the transformers and choke coils are immersed, while the other serves to enclose the meter and meter panel. On the meter panel are also mounted two fuses to protect the voltage circuit of the meter and two calibrating links located in the current circuit of the meter. The meter may be read or checked upon opening the hinged door which covers the entire front of the meter compartment. The arrangement is such that the entire outfit, including meter panel, can be raised out of the tank without disconnecting meter leads.

Connections—Three primary outlet terminals supported on the cover provide the necessary primary connections. A large handhole is provided in the cover of the metering equipment to facilitate connection or disconnection of the outlet terminals.

Number includes outfit complete except watthour meter and oil. List price includes outfit complete with oil and watthour meter, No. 224369, calibrated as desired. When ordering specify style number of outfit, normal voltage, primary current capacity*, style number of watthour meter, No. 224369, calibration desired on watthour meter and gallons oil.

POLYPHASE 60-CYCLE EQUIPMENTS†

Capacity: Current Transformers— 50 volt-amperes; compensated for 25 volt-amperes.

Voltage Transformers—200 volt-amperes; compensated for 40 volt-amperes.

Rated Primary Voltage 125 Volts Secondary	Approx. Dimensions, In. Floor Space	Approx. Wt., Lb. Without Oil Net	Approx. Wt., Lb. Without Oil Ship.	Oil Required Gallons	5 to 50 Amperes Mfrs. No.‡ 5–10 Amperes	5 to 50 Amperes Mfrs. No.‡ 10–20 Amperes	5 to 50 Amperes Mfrs. No.‡ 25–50 Amperes	5 to 50 Amperes Price‡ Each	100 to 200 Amperes Mfrs. No.‡ 50–100 Amperes	100 to 200 Amperes Mfrs. No.‡ 100–200 Amperes	100 to 200 Amperes Price‡ Each
11,500	28x41	44	42	1100	1350	**272493**	**272494**	**272495**	**$850.00**	272496	272497	**$875.00**
13,800	28x41	44	42	1100	1350	**272498**	**272499**	**272500**	**875.00**	272501	272502	**900.00**
11,500 or 23,000	29x41	56	45	1385	1650	**272503**	**272504**	**272505**	**1175.00**	272506	272507	**1200.00**
23,000	29x41	54	43	1400	1700	**272508**	**272509**	**272510**	**1150.00**	272511	272512	**1175.00**
34,500	35x44	60	70	1710	2100	**272513**	**272514**	**272515**	**1500.00**	272516	272517	**1525.00**
44,000	46x50	83	153	2530	3000	**272518**	**272519**	**272520**	**2300.00**	272521	272522	**2325.00**
66,000	50x60	100	270	2600	3100	**272523**	**272524**	**272525**	**3275.00**	272526	272527	**3300.00**

Two or Three-Phase Four-Wire Service—Equipments listed above are not suitable for two-phase four-wire or three-phase four-wire service; equipments for this service can be supplied on special order, prices on request.

*The current transformers have two primary windings which can be connected in series or parallel to give the lower or higher current rating listed. Order should specify which current rating is desired so proper connection and meter calibration can be made at the works.

†These equipments may also be obtained for use with 25 cycles. Prices upon application.

§Equipments are regularly shipped in their tanks without oil—oil is shipped separately and weighs approximately 7 pounds net per gallon and 8½ pounds gross per gallon. On receipt at destination equipments should be filled with clean dry oil immediately.

‡See "number and list price include" above.

WESTINGHOUSE AUTOMOBILE AMMETERS

TYPE BT—DIRECT CURRENT

For use on automobile dash or cowl when electric generators or storage batteries supply the power for starting, ignition and lighting. On motor boats, yachts, aerial craft, small direct current switchboards, farm lighting panels and battery charging panels this ammeter should also find ready application. The case corresponds with the standard S. A. E. dimensions, and is arranged to be attached to the instrument board or switch plate by means of a clamp in the rear or by means of three mounting screws through the flange.

Standard finish is nickeled rim and black dial with white pointer and figures. Frosted dials with black pointer and figures are also furnished.

Three standard styles of rim are provided: Narrow, rounded and beaded rims for rear clamping cases to match up with the more popular styles of oil pressure gauge rims and a wider rim with three mounting screw holes for front mounting.

Only the 20-0-20 amperes and 30-0-30 amperes capacities are listed. Ammeters of smaller capacities such as 10-0-10 amperes and 15-0-15 amperes can be produced specially. Left zero ammeters for special purposes can also be furnished. These instruments are self-contained.

Rear mounting type, overall dimensions are, 2¼ inch in diameter and ½ inch thick. Front mounting type 2⅝ inches in diameter and ½ inch thick.

Black Dial for Metal Dash

Mfrs. No. Front Flange Mounting	Mfrs. No. Rear Clamp Mounting	Capacity	Rim (Nickel)	Price Each
375016	**356401**	20-0-20	Beaded	**$1.50**
.....	**356402**	20-0-20	Rounded	**1.50**
375375	**356403**	30-0-30	Beaded	**1.50**
.....	**356404**	30-0-30	Rounded	**1.50**
	Frosted Dial for Metal Dash			
375377	**356405**	20-0-20	Beaded	**1.50**
.....	**356406**	20-0-20	Rounded	**1.50**
375379	**356407**	30-0-30	Beaded	**1.50**
.....	**356408**	30-0-30	Rounded	**1.50**
	Black Dial for Wood Dash			
375374	**356409**	20-0-20	Beaded	1.50
.....	**356410**	20-0-20	Rounded	1.50
375376	**356411**	30-0-30	Beaded	1.50
.....	**356412**	30-0-30	Rounded	**1.50**
	Frosted Dial for Wood Dash			
375378	**356413**	20-0-20	Beaded	**1.50**
.....	**356414**	20-0-20	Rounded	**1.50**
375380	**356415**	30-0-30	Beaded	**1.50**
.....	**356416**	30-0-30	Rounded	**1.50**
374990*	.....	20-0-20	Beaded	**1.50**

*Black dial with special case and rim to fit standard switch mounting of Ford cars.

REPAIR PARTS

Mfrs. No.	Description	Price Per 100	Price Each
357270	Beaded Rim*	.....	**$0.35**
357271	Rounded Rim*	.....	**.35**
374981	Wide Rim*	.....	**.35**
356367	Glass Only	.....	**.10**
356364	Rear Clamp for Metal Dash	**$10.00**	.....
357265	Rear Clamp for Wood Dash	**10.00**	.....
356379	Car Wiring Terminal Clip	**5.00**	.....

*Complete with glass, nickel finish.

WESTINGHOUSE AUTOMOBILE AMMETERS

TYPE BI—DIRECT CURRENT

For use on the automobile dash or cowl when electric generators, motors and storage batteries for starting, ignition and lighting are used. They also find ready application on motor boats, yachts, aerial craft, small direct current switchboards, farm lighting panels and for charging batteries. Mounted in open faced circular pressed metal cases with terminal studs for rear connection. Instruments are self-contained in the capacities listed, and no external shunts or resistors are required, except for the 50 volt and 130 volt voltmeters. The ammeters are not damaged by momentary short circuits up to 500 amperes. The case finish is black rubberoid with a brightly polished nickel rim, holding the glass. The dials are of metal, black or white nickel, as desired.

Diameter over flange approximately 2½ inches; requires an opening in the dash of approximately 2 inches; exact mounting dimensions on request. Net weight, 4 ounces; boxed, 8 ounces. Individual units can be shipped by mail.

Ammeters Without Mounting Details

Mfrs. No. Black Dial Flush	Mfrs. No. White Nickel Dial Projecting	Scale	Price Each
257775	**270436**	15-0-15	**$3.00**
257777	**270438**	20-0-20	**3.00**
257779	**270440**	30-0-30	**3.00**

Ammeter Rear Mounting Flush-Type*

289106	**289130**	20-0-20	**3.00**
289129	**289131**	30-0-30	**3.00**

Ammeters With Mounting Details

.....	328909	328914	5-0-5	3.15
.....	328910	328915	10-0-10	3.15
257776	**270437**	328916	15-0-15	3.15
257778	**270439**	**328917**	20-0-20	**3.15**
257780	**270441**	**328918**	30-0-30	**3.15**

Voltmeters With Mounting Details

.....	**320977**	**328902**	3-0-3	**6.00**
.....	**320978**	**328903**	5-0-5	**6.00**
.....	**320979**	**328904**	10-0-10	**6.00**
.....	**320980**	**328905**	15-0-15	**6.00**
.....	**320981**	**328906**	30-0-30	**6.00**
.....	**320982**	**328907**	50-0-50	**7.00**
.....	**320983**	**328908**	130-0-130	**8.00**

Mounting Clamps

Mfrs. No.	Description	Price Each
251488	For Metal Dash	**$0.15**
251489	For ½-Inch Wood Dash	.15
251490	For ⅝-Inch Wood Dash	**.15**
251491	For ¾-Inch Wood Dash	**.15**

*The mounting clamp numbers include necessary nuts and terminal clips for assembling to dash and making connections.

†Mounting Clamp not included.

WESTINGHOUSE SWITCHBOARD INSTRUMENTS

TYPE BX—D. C. OR RADIO-FREQUENCY A. C.

For use on small panels where accurate readings are required. These instruments are used in radio work where it is desirable to measure filament and plate currents or voltages and check the A and B batteries; also on farm lighting and battery charging panels, automobile and aircraft dash boards; in marine and electro-medical service.

AMMETERS

Mfrs. No. Flush Mounting White Dial	Flush Mounting Black Dial	Projection Mounting White Dial	Projection Mounting Black Dial	Cap.	Price Each
287086	287085	289458	289459	Uncal.	$10.00
284918	364264	289144	364294	1	10.00
284919	364265	289145	364295	2	10.00
284920	364266	289146	364296	3	10.00
284921	364267	289147	364297	5	10.00
284922	364268	289148	364298	10	10.00
284923	364269	289149	364299	15	10.00
284924	364270	289150	364300	*25	10.00
289169	364271	289183	364301	½-0-1-½	10.00
284925	284928	289151	289154	20-0-20	10.00
284927	284930	289153	289156	25-0-25	10.00
284926	284929	289152	289155	30-0-30	10.00

VOLTMETERS

284931	364272	289157	364302	3	10.00
284932	284940	289158	289166	8	10.00
284933	284941	289159	289167	10	10.00
284934	284942	289160	289168	16	10.00
284935	364273	289161	364303	25	10.00
323694	323696	323704	323706	30	10.00
323695	323697	323705	323707	40	11.00
284936	364274	289162	364304	†50	11.00
284937	364275	289163	364305	†75	11.00
284938	364276	289164	364306	†120	12.00
284939	364277	289165	364307	†150	12.00

MILLIAMMETERS

289170	364278	289184	364308	100	10.00
289171	364279	289185	364309	150	10.00
289172	364280	289186	364310	250	10.00

RADIO-FREQUENCY A. C. AMMETERS

302368	364281	302373	364311	0.1	20.00
302367	364282	302372	364312	0.2	20.00
302366	364283	302371	364313	0.3	20.00
302365	364284	302370	364314	0.4	20.00
302364	364285	302369	364315	0.5	20.00
289173	364286	289187	364316	0.6	20.00
289174	364287	289188	364317	0.8	20.00
272913	364288	289189	364318	1.0	15.00
289176	364289	289190	364319	1.5	15.00
289177	364290	289191	364320	2.0	15.00
289178	364291	289192	364321	3.0	15.00
289179	364292	289193	364322	4.0	15.00
289180	364293	289194	364323	6.0‡	15.00

*Higher capacities can be obtained using external shunts.

†Supplied with external resistor mounted on back of meter. Higher capacities can be supplied. Prices on request.

‡For higher capacities see types CX or DX.

WESTINGHOUSE SWITCHBOARD INSTRUMENTS

TYPE CX—D. C. OR RADIO-FREQUENCY A. C.

The type CX instruments are larger than type BX instruments. Their application is similar to that of the type BX for panels where the operator wishes to make observations at distances or from six to ten feet. They find particular application on small isolated panels such as the larger sizes of battery charging panels, farm lighting sets, etc. The larger sizes of radio sets where space is not a limiting factor should be equipped with these instruments. These instruments are 3½ inches in diameter. Net weight, 1 pound; boxed, 2 pounds.

AMMETERS

Mfrs. No. Flush Mounting White Dial	Flush Mounting Black Dial	Projection Mounting White Dial	Projection Mounting Black Dial	Cap.	Price Each
312066	312067	312129	312130	†Uncal.	$11.00
312048	312057	312111	312121	1.5	11.00
312049	312058	312112	312121	2	11.00
312050	312059	312113	312122	3	11.00
312051	312060	312114	312123	4	11.00
312052	312061	312115	312124	6	11.00
312053	312062	312116	312125	8	11.00
312054	312063	312117	312126	10	11.00
312055	312064	312118	312127	15	11.00
312056	312065	312119	312128	*25	11.00
318843	318845	318851	318853	20-0-20	11.00
318844	318846	318852	318854	30-0-30	11.00

VOLTMETERS

323836	323843	323850	323857	1	11.00
323837	323844	323851	323858	5	11.00
318847	318849	318855	318857	8	11.00
323838	323845	323852	323859	10	11.00
323839	323846	323853	323860	15	11.00
318848	318850	318856	318858	16	11.00
323840	323847	323854	323861	25	11.00
323841	323848	323855	323862	‡50	12.00
323842	323849	323856	323863	‡75	12.00
312068	312072	312131	312135	‡50, 100	14.00
312069	312073	312132	312136	‡150	14.00
312070	312074	312133	312137	‡300	18.00
312071	312075	312134	312138	‡50, 500	21.00

MILLIAMMETERS

312078	364324	312141	364327	100	11.00
312079	364325	312142	364328	150	11.00
312080	364326	312143	364329	250	11.00

RADIO FREQUENCY A. C. AMMETERS

312109	312110	312172	312173	Uncal.	25.00
312081	312095	312144	312158	0.15	25.00
312082	312096	312145	312159	0.2	25.00
312083	312097	312146	312160	0.3	25.00
312084	312098	312147	312161	0.4	25.00
312085	312099	312148	312162	0.6	25.00
312086	312100	312149	312163	0.8	25.00
312087	312101	312150	312164	1.0	20.00
312088	312102	312151	312165	1.5	20.00
312089	312103	312152	312166	2.0	20.00
312090	312104	312153	312167	3.0	20.00
312091	312105	312154	312168	4.0	20.00
312092	312106	312155	312169	6.0	20.00
312093	312107	312156	312170	8.0	20.00
312094	312108	312157	312171	**10.0	20.00

*Higher capacities can be used with external shunts. †For use with type G shunts. **Higher capacities, see type DX. ‡Supplied with external resistor. Higher capacities can be supplied. Prices on request.

WESTINGHOUSE SWITCHBOARD INSTRUMENTS
TYPE DX—DIRECT CURRENT

Type DX Voltmeter

Type DX Duplex Ammeter

Are made as direct current ammeters and voltmeters, radio frequency a-c. ammeters, galvanometers, speed indicators, temperature indicators, differential voltmeters, ground detector voltmeters, double-reading ammeters and voltmeters, pyrometer millivoltmeters, and micro-ammeters. Ammeters, voltmeters, etc., insulated for 4000 volts, can be obtained. The standard numbers are for instruments having projecting or front of board mounting cases. They are also made with flush type cases.

Compact measuring instruments on the Edison three wire systems are desirable. An instrument has been developed known as type DX duplex for this service.

AMMETERS

Mfrs. No. White Dial	Mfrs. No. Black Dial	Capacity	Price Each
301803	**319087**	Uncal.	**$18.00**
301804	**319088**	1	**18.00**
301805	**319089**	5	**18.00**
301806	**319090**	10	**18.00**
301807	**319091**	15	**18.00**
301808	**319092**	25	**20.00**
364335	**364352**	* 50	**18.00**
364336	**364353**	* 75	**18.00**
364337	**364354**	* 100	**18.00**
364338	**364355**	* 150	**18.00**
364339	**364356**	* 200	**18.00**
364340	**364357**	* 250	**18.00**
364341	**364358**	* 300	**18.00**
364342	**364359**	* 400	**18.00**
364343	**364360**	* 500	**18.00**
364344	**364361**	* 600	**18.00**
364345	**364362**	* 800	**18.00**
364346	**364363**	*1000	**18.00**
364347	**364364**	*1200	**18.00**
364348	**364365**	*1500	**18.00**
364349	**364366**	*2000	**18.00**
364350	**364367**	*2500	**18.00**
364351	**364368**	*3000	**18.00**

*For use with external shunts.

VOLTMETERS

301810	**319095**	10	**18.00**
301811	**319096**	25	**18.00**
301812	**319097**	50	**19.00**
301813	**319098**	75	**19.00**
301814	**319099**	150	**20.00**
301815	**319100**	300	**24.00**
301816	**319101**	500	**30.00**
301817	**319102**	600	**38.00**
301818	**319103**	750	**41.00**

RADIO-FREQUENCY A. C. AMMETERS

301819	**319106**	6	**25.00**
301820	**319107**	8	**25.00**
301821	**319108**	10	**25.00**
301822	**319109**	15	**25.00**
301823	**319110**	20	**25.00**

Unealibrated numbers can be calibrated for use with external shunt as desired.

WESTINGHOUSE SWITCHBOARD INSTRUMENTS
TYPE SX—DIRECT CURRENT

Type SX Ammeter

The type SX instruments are for general switchboard use and match up in appearance with the type SY line of alternating current instruments. Overall diameter is 7½ inches; the depth is 2¾ inches. Net weight 9 pounds; boxed 20 pounds.

AMMETERS
For Use With Shunts—For Voltages Up to 750
Price Each, $30.00

Mfrs. No. White Dial	Mfrs. No. Black Dial	Cap.	Mfrs. No. White Dial	Mfrs. No. Black Dial	Cap
293399	**293400**	Uncal.	**304530**	**370890**	* 400
304521	**370881**	* 15	**304531**	**370891**	* 500
304522	**370882**	* 25	**304532**	**370892**	* 600
304523	**370883**	* 50	**304533**	**370893**	* 800
304524	**370884**	* 75	**304534**	**370894**	*1000
304525	**370885**	*100	**304535**	**370895**	*1200
304526	**370886**	*150	**304536**	**370896**	*1500
304527	**370887**	*200	**304537**	**370897**	*2000
304528	**370888**	*250	**304538**	**370898**	*2500
304529	**370889**	*300	**304539**	**370899**	*3000

VOLTMETERS

Mfrs. No. White Dial	Mfrs. No. Black Dial	Capacity	Price Each
293402	**293407**	150	**$35.00**
293403	**293408**	300	**38.00**
293404	**293409**	600	**42.00**
293405	**293410**	750	**45.00**

RADIO-FREQUENCY A. C. AMMETERS

306227	**306232**	6	**37.00**
306228	**306233**	8	**37.00**
306229	**306234**	10	**37.00**
306230	**306235**	15	**37.00**
306231	**306236**	20	**37.00**

Other capacities are available. Prices on request.

*All calibrated ammeters are for use with external shunts.

These styles include leads but not shunts.

SPECIAL INSTRUMENTS
DIFFERENTIAL VOLTMETERS

Are used for paralleling generators. They have the zero in the center of the scale and are arranged to read zero when equal voltages of the same polarity are applied. Differential voltmeters require external resistors.

GROUND DETECTOR VOLTMETERS

Also called leakage detectors, can be supplied on special order arranged to read zero when two voltages of opposite polarity are applied. These instruments are also used for indicating unbalanced voltages of three-wire circuits.

DOUBLE READING AMMETERS AND VOLTMETERS

With zero at any point on the scale and graduated for readings in both directions will be furnished on special order.

PYROMETER MILLIVOLTMETER

For use with thermo-electric couples can be adjusted for eight millivolts up to any millivoltage full scale. The current required at full scale is 0.002 amperes. The scale can be calibrated in millivolts or degrees.

Note.—Prices on any of the above instruments quoted on request.

WESTINGHOUSE SHUNTS FOR DIRECT CURRENT AMMETERS
TYPE G—SWITCHBOARD TYPE

200 Ampere Type G Shunt

250 Ampere Type G Shunt

500 Ampere Type G Shunt

1000 Ampere Type G Shunt

6000 Ampere Type G Shunt

The type G shunts are designed for use on horizontal laminated bus bars, but will operate in any position without overheating. The terminal castings above 300 amperes are slotted to receive one ¼ inch copper bar per slot. The sizes ranging from 10 to 300 amperes are mounted on a light micarta strip which takes all strain that might arise from bus bar distortion, from the terminal lug and manganin plate joint.

Temperature Coefficient

The resistance plates of the type G shunts have a negligible temperature coefficient and thermoelectromotive force, thus avoiding errors due to heating, which may amount to several percent in other resistor materials.

Temperature Rise

Type G shunts operate at a temperature rise of 30° C. if connected to bus bars of ample conductivity when carrying two-thirds of their rated current which would correspond to the normal full load rating of the circuit.

Interchangeability

Type G shunts are adjusted for 50 millivolts drop at full rated current, and are interchangeable with certain other standard makes of the same rating.

Rating

Shunts are rated according to full scale rating of the ammeters which, in general, should be about 50 per cent in excess of the full load current of the circuit. They are intended primarily for Westinghouse ammeters but can be used with any instrument requiring 50 millivolts for full scale deflection.

Larger capacities shunts than listed can be furnished on special order, prices on application. It is recommended, however, that wherever possible, instead of ordering larger shunts for measurement of heavy capacity circuits, several of the smaller shunts be connected in multiple, each shunt being provided with separate leads to the ammeter terminals. For example, use four 5000 ampere shunts in connection with a 20,000 ampere ammeter, etc.

This arrangement will be found to be less expensive, more accurate and more desirable from an operating viewpoint than using a single 20,000 ampere shunt.

Portable Shunts

Shunts for use with portable instruments are listed on the pages covering the portable instruments. Type G shunts are also suitable for portable service with shunted type ammeters or millivoltmeters requiring 50 millivolts for full scale deflection. The accuracy of the combination is lower than when 100 millivolt shunts and instruments are used, unless the air temperature is between 20 and 30° C., as 50 millivolt instruments have not sufficient resistance to compensate completely for temperature errors.

Number and list price include shunt complete with instrument lead connecting screws, but do not include leads or cable terminals. Shunt leads are furnished with all shunted type ammeters.

PRICES

Mfrs. No.	Capacity Amperes	Price Each	Mfrs. No.	Capacity Amperes	Price Each
289653	10	**$5.00**	**282641**	600	**$ 9.00**
289652	25	**5.00**	**282642**	800	**12.50**
289651	25	**5.00**	**282643**	1000	**12.50**
289650	50	**5.00**	**282644**	1200	**14.00**
289649	75	**5.00**	**282645**	1500	**24.00**
282634	100	**5.00**	**282646**	2000	**30.00**
282635	150	**5.00**	**282647**	2500	**33.00**
282636	200	**5.50**	**282648**	3000	**37.00**
282637	250	**5.50**	**282649**	4000	**50.00**
282633	300	**5.50**	**282650**	5000	**75.00**
282639	400	**6.00**	**282651**	6000	**87.00**
282640	500	**7.50**	**282652**	8000	**125.00**

WESTINGHOUSE SWITCHBOARD INSTRUMENTS

TYPES DY AND SY—ALTERNATING CURRENT

Type DY Voltmeter

Type SY Power Factor Meter

The type DY instruments, 4¾ inches in diameter, match in size and appearance, with the direct current type DX instruments. The DY instrument has a 3¼ inch scale and is for general switchboard applications where space is to be economized and accurate readings required.

The type SY instruments, 7½ inches in diameter, match with the direct current, type SX instruments. Both types, DY and SY have the same size movement. The SY instrument has 5¼ inch scale and is for general switchboard application.

The case is of soft iron, with standard dull-black marine finish. The case may be easily removed without taking the instrument from the panel. The cover is of flat glass, giving full opening for maximum lighting and legibility. There is an external zero adjustor. Instruments are furnished rear connected.

These instruments can be used on direct current. By the correct proportioning of current values, all instruments except frequency meters, single-phase power factor meters, and synchronoscopes can be calibrated on direct current, thus doing away with the necessity of a transfer standard.

Ammeters should be selected with full scale marking about 50 per cent in excess of full load of the circuit. For circuits of more than 10 amperes maximum current, or for circuits of any capacity at more than 600 volts, current transformers are required. The self contained instruments listed, are not insulated for more than 600 volts.

Voltmeters should be ordered with scale markings to suit voltage transformer ratios using uncalibrated style numbers. All voltmeters have external series resistors.

Wattmeters should be selected with full scale capacity 50 per cent in excess of full load of the circuit and with voltage rating within 25 per cent of the nominal voltage of the circuit to be measured.

For higher voltages, voltage transformers are necessary and should be ordered to suit the conditions. For currents of more than 10 amperes, or for circuits of any capacity at more than 600 volts, current transformers are required. All wattmeters have external series resistors for the voltage circuit. When an instrument is desired with full scale capacity differing from the product of primary current and voltage, the current rating of the instrument should correspond to the secondary current of the transformer at the desired full scale rating.

Power factor meters should be selected so that the maximum operating current will always be the same as the rating of the instrument. There are three external resistors for the voltage circuits of a three-phase meter and a combination resistor-reactor for the single-phase meter. Single-phase meters should be used on a specific frequency and ordered accordingly. For two-phase service use single-phase instrument. The 50-100-50 scale is for use with alternating current generators, synchronous motors, and feeders supplying principally synchronous motors. The 20-100-20 scale is for use with compound wound synchronous converters and induction motor feeders.

Frequency meters are for use on normally 110 volt circuits plus or minus 20 per cent. Other ranges supplied on special order.

One current transformer is required for single-phase operation, two for two-phase and three-phase three-wire, and three for three-phase four-wire. One voltage transformer is required for single-phase operation and two for polyphase.

TYPE DY AMMETERS

Calibrated for Use with Transformers

Mfrs. Nos. White Dial	Mfrs. Nos. Black Dial	Capacity Amperes	Price Each
363859	363876	5	$24.00
363860	363877	10	24.00
363861	363878	15	24.00
363862	363879	25	24.00
363863	363880	50	24.00
363864	363881	75	24.00
363865	363882	100	24.00
363866	363883	150	24.00
363867	363884	200	24.00
363868	363885	300	24.00
363869	363886	400	24.00
363870	363887	500	24.00
363871	363888	750	24.00
363872	363889	1000	24.00
363873	363890	1500	24.00
363874	363891	2000	24.00
363875	363892	2500	24.00

TYPE SY AMMETERS

Calibrated for Use with Transformers

Mfrs. Nos. White Dial	Mfrs. Nos. Black Dial	Capacity Amperes	Price Each
363825	363842	5	$30.00
363826	363843	10	30.00
363827	363844	15	30.00
363828	363845	25	30.00
363829	363846	50	30.00
363830	363847	75	30.00
363831	363848	100	30.00
363832	363849	150	30.00
363833	363850	200	30.00
363834	363851	300	30.00
363335	363852	400	30.00
363836	363853	500	30.00
363837	363854	750	30.00
363838	363855	1000	30.00
363839	363856	1500	30.00
363840	363857	2000	30.00
363841	363858	2500	30.00

(Table continued on following page)

WESTINGHOUSE SWITCHBOARD INSTRUMENTS

TYPE DY—ALTERNATING CURRENT
Continued

Type DY Ammeter

TYPE DY INSTRUMENTS
AMMETERS

Mfrs. Nos. White Dial	Mfrs. Nos. Black Dial	Capacity Amperes	Price Each
363732	363778	3.5–4.5	$25.00
363733	363779	4.5–5.5	25.00
363734	363780	5.5–6.5	25.00
363735	363781	7–8	25.00
363736	363782	9–11	25.00
Self-Contained for Use without Transformers			
363737	363783	10	25.00
363738	363784	15	25.00
363739	363785	20	25.00
363740	363786	25	25.00
VOLTMETERS			
363746	363792	Uncal.(150 V.coils)	27.00
363747	363793	150	27.00
363748	363794	300	32.00
363749	363795	600	37.00
363750	363796	750	42.00
SINGLE-PHASE WATTMETERS			
Calibrated as Desired with Transformers			
		Amps.	Volts
363751	363797	5	100 48.00
363752	363798	5	200 53.00
363753	363799	5	400 58.00
363754	363800	10	100 48.00
363755	363801	10	200 53.00
363756	363802	10	400 58.00
UNCALIBRATED POLYPHASE WATTMETERS			
Calibrated as Desired with Transformers			
363757	363803	4	100 70.00
363758	363804	5	100 70.00
363759	363805	7.5	100 70.00
363760	363806	10	100 70.00
363761	363807	4	200 75.00
363762	363808	5	200 75.00
363763	363809	7.5	200 75.00
363764	363810	10	200 75.00
363765	363811	4	400 80.00
363766	363812	5	400 80.00
363767	363813	7.5	400 80.00
363768	363814	10	400 80.00
363769	363815	4	500 80.00
363770	363816	5	500 80.00
363771	363817	7.5	500 80.00
363772	363818	10	500 80.00

Note:—Current ratings are plus or minus 10%. Voltage ratings are plus or minus 20%.

POWER FACTOR METERS

		Cycles	Volts	Scale	
Single-Phase					
363773	363819	25	110	50–100–50	55.00
372235	372239	25	110	20–100–90	55.00
372236	372240	60	110	50–100–50	55.00
372237	372241	60	110	20–100–90	55.00
Three-Phase, 3-Wire					
363774	363820	Any	110	50–100–50	55.00
372238	372242	Any	110	20–100–90	55.00
FREQUENCY METERS					
363775	363821	25	110	.....	60.00
363776	363822	60	110	.....	60.00

WESTINGHOUSE SWITCHBOARD INSTRUMENTS

TYPE SY—ALTERNATING CURRENT
Continued

Type SY Kilowatt Meter

TYPE SY INSTRUMENTS
AMMETERS

Mfrs. Nos. White Dial	Mfrs. Nos. Black Dial	Capacity Amperes	Price Each
363640	363686	3.5–4.5	$31.00
363641	363687	4.5–5.5	31.00
363642	363688	5.5–6.5	31.00
363643	363689	7–8	31.00
363644	363690	9–11	31.00
Self-Contained for Use without Transformers			
363645	363691	10	31.00
363646	363692	15	31.00
363647	363693	20	31.00
363648	363694	25	31.00
VOLTMETERS			
363654	363700	Uncal.(150 V.coils)	35.00
363655	363701	150	35.00
363656	363702	300	40.00
363657	363703	600	45.00
363658	363704	750	50.00
SINGLE-PHASE WATTMETERS			
Calibrated as Desired with Transformers			
		Amps.	Volts
363659	363705	5	100 65.00
363660	363706	5	200 70.00
363661	363707	5	400 75.00
363662	363708	10	100 65.00
363663	363709	10	200 70.00
363664	363710	10	400 75.00
UNCALIBRATED POLYPHASE WATTMETERS			
Calibrated as Desired with Transformers			
363665	363711	4	100 90.00
363666	363712	5	100 90.00
363667	363713	7.5	100 90.00
363668	363714	10	100 90.00
363669	363715	4	200 95.00
363670	363716	5	200 95.00
363671	363717	7.5	200 95.00
363672	363718	10	200 95.00
363673	363719	4	400 100.00
363674	363720	5	400 100.00
363675	363721	7.5	400 100.00
363676	363722	10	400 100.00
363677	363723	4	500 100.00
363678	363724	5	500 100.00
363679	363725	7.5	500 100.00
363680	363726	10	500 100.00

Note:—Current ratings are plus or minus 10%. Voltage ratings are plus or minus 20%.

POWER FACTOR METERS

		Cycles	Volts	Scale	
Single-Phase					
363681	363727	25	110	50–100–50	75.00
372243	372247	25	110	20–100–90	75.00
372244	372248	60	110	50–100–50	75.00
372245	372249	60	110	20–100–90	75.00
Three-Phase, 3-Wire					
363682	363728	Any	110	50–100–50	75.00
372246	372250	Any	110	20–100–90	75.00
FREQUENCY METERS					
363683	363729	25	110	.....	80.00
363684	363730	60	110	.....	80.00

WESTINGHOUSE RECORDING INSTRUMENTS

TYPE R PORTABLE—A. C. AND D. C.

Wattmeter Three-Phase A. C.

There are certain applications of portable recording instruments where records that are as accurate and reliable as those obtained on large switchboard graphic instruments are necessary. Among these applications are analysis of motor operation, typical consumption curves of large industrial consumers, and records showing power distribution. All of these require graphic records covering long periods of time, and records that are as accurate as is possible to obtain. The type R portable recording instruments being an adaptation of the switchboard type of instrument, fulfills all of these requirements. The difference between the two is that the switchboard element as a whole is mounted in a portable carrying case. An electric self-winding clock is used for speeds up to 24 inches per hour. A hand-wound clock can be supplied for speeds up to 4 inches per hour.

AMMETERS—ALTERNATING CURRENT

Have a nominal capacity of 5 amperes and may be used on any frequency or on a direct current circuit not exceeding 5 amperes, but cannot be operated from a shunt for higher direct current ranges. For higher alternating current ranges, the instrument should be operated with current transformers. The 5 ampere full-scale calibration may be varied from 4 amperes to 7½ amperes if required to suit current transformer capacities. Specify full scale rating desired according to the paper capacity selected, the speed of paper and ratio of current transformer.

Mfrs. No.	Capacity Amperes	Control Circuit Volts, D. C. 25 and 60 Cycles	Price Each
289426	5	110	**$330.00**

VOLTMETERS—A. C. AND D. C.

These instruments are correct at any frequency. For higher alternating current voltages than those listed, the 90 to 140 volt range should be selected and operated from a voltage transformer.

Voltmeters may be calibrated with readings beginning from zero if desired. Specify full scale rating desired according to paper capacity, speed of paper, and ratio of voltage transformer.

Mfrs. No.	Capacity Volts	Control Circuit Volts D. C., 25 and 60 Cycles	Price Each
289428	90-140	110	**$330.00**
289430	180-280	110	**330.00**
289432	250-450	110	**330.00**
289434	360-560	110	**330.00**
289436	450-700	110	**330.00**

WESTINGHOUSE RECORDING INSTRUMENTS

TYPE R PORTABLE—A. C. AND D. C.

Wattmeter With Cover Removed

WATTMETERS—SINGLE AND POLYPHASE

The instruments listed below are polyphase wattmeters. For single-phase service the current binding posts are to be connected in series and the voltage binding posts in parallel and the calibration made by the use of ½ as a multiplier. The instruments listed have a nominal capacity of 5 amperes and may be used on any frequency or on a direct current circuit not exceeding 5 amperes, but cannot be operated from shunt for higher direct current ranges. For higher alternating current ranges current transformers should be used. The 5 ampere full scale rating may be varied from 4 amperes to 7½ amperes to suit current transformer and scale required. For single-phase, one current transformer is necessary. For three-phase three-wire or for two-phase, two current transformers are required. For three-phase four-wire, or three-phase six-wire, three current transformers are required. For higher voltages than listed, the 110 volt instruments should be operated with voltage transformers, one being required for single-phase and two for polyphase.

Order should specify the full scale rating desired according to paper capacities selected, speed of the paper and the ratio of current and voltage transformer.

If control circuits of other capacity than listed are desired, prices will be furnished on request.

Mfrs. No.	Amps.	Volts	Control Circuit Volts, D. C., 25 and 60 Cycles	Price Each
289438	5-10	110	110	**$330.00**
289440	5-10	220	110	**330.00**
289442	5-10	550	110	**330.00**

Dimensions and Weights

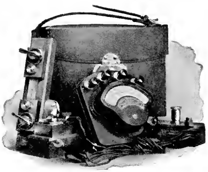
The approximate dimensions are: Overall width, 13¾ inches; overall length, 16½ inches; overall depth, 9½ inches. Net weight of one instrument is 35 pounds, shipping weight, 170 pounds.

Number and list price include instrument with one roll of standard paper, two pens, one filler, one bottle of ink, one indicating dial and pointer, but without transformers.

Voltage transformers should have a secondary voltage of 100 volts at the nominal voltage of the circuit. Current transformers should have a secondary current of 5 amperes at the maximum reading of the instrument.

WESTON TESTING INSTRUMENTS

GARAGE TESTING SET
MODEL 280
For Direct Current



Well-equipped garages must be prepared to promptly and accurately determine the condition of electrical equipment of any automobile. For this purpose a high grade, yet not necessarily expensive instrument that is extremely reliable, permanent in calibration and generally serviceable is needed. The instrument shown above with external shunts for ampere measurements has interchangeable parts and is especially designed for this condition.

Instrument is compact, practically pocket size, has a uniform and legible scale, perfectly deadbeat, quick in action and shielded from disturbing influences of external magnetic fields. Has a very practical combination of ranges, 3 and 30 volts and 100 millivolts, all self contained and is provided with external shunts of 3, 30 and 300 ampere rating for use in making current measurements. Three volt range is of service in testing individual cells of storage batteries; thirty volt range for determining voltage of battery and of generator, and for testing for grounds and open circuits, 100-millivolt range may be used to determine the drop over segments of motor or generator commutator; 300 ampere range is useful to determine the starting current. 30 and 3 ampere ranges for measuring the current required by the lights, etc. A book of instructions accompanies each instrument. Also if desired, a sewed leather carrying case, provided with sling strap will be furnished at an additional cost of **$5.00** net. An external multiplier for range of 150 volts is necessary for measuring direct current line voltage of electric vehicles. This is furnished at an extra charge of **$4.75**.

Dimensions Over All, Inches	Wt. Lbs. Each	Price Each
4⅗x4⅖x1½	3¾	**$41.25**

WESTON SWITCHBOARD INSTRUMENTS

VOLTMETERS AND AMMETERS—Model 260
For Alternating Current

These alternating current, small round pattern, indicating switchboard instruments possess exactly the same meritorious characteristics as does the well-known group of larger Weston alternating current instruments, the only difference being the diameter of case and length of pointer and scale. Construction features are based on the movable iron or electromagnetic principle. The movable element of each instrument is made as light as possible consistent with the requisite strength. It is supported on accurately ground, hardened and polished steel pivots resting in sapphire jewels of the highest grade. The light weight and low moment of inertia of each movable element makes it exceptionally responsive to small or rapid changes in the circuit to which it is connected. The action of the pointer is rendered nearly aperiodic or dead beat by an improved air damping device. This feature is of the utmost importance, especially on circuits subject to frequent and violent overloads. Each instrument is mounted in a dust-proof, drawn-steel case, which serves to protect the movement from the influence of external magnetic fields. Cases are of a uniform diameter, being $7\frac{21}{32}$ inches and a uniform projection of 3⅞ inches. Both volt and ammeters are provided with a simple zero correcting device operative from outside of case. Scales are not uniform throughout the entire length; are hand calibrated by direct comparison with accurate reference standard. Instruments are accurate within one per cent of full scale value under all normal working conditions. Designed for back connection only, having wrought iron sleeves through which pass the insulating terminals. These sleeves serve to secure instrument to switchboard and form a ready means of grounding instrument. Cases finished in rich dull black japan; other finishes will be supplied when ordered, at a slight advance over list.

VOLTMETERS

Volts	Wt. Lbs. Each	Price Each
130	5¼	**$28.00**
150	5¼	**28.50**
300	5¼	**34.75**
500	5½	**36.00**
600	5½	**36.50**
750	5½	**38.50**

Note.—External resistors are provided for circuits in excess of 300 volts.

AMMETERS

Amperes	Wt. Lbs. Each	Price Each
5	5¼	$26.50

Ammeters are furnished in one range only, as they are intended for use with current transformers exclusively. Ammeters with self-contained capacities up to and including 500 amperes for use on potentials up to 2,300 volts can be furnished in Model 156.

WESTON SWITCHBOARD INSTRUMENTS

ROUND PATTERN—MODEL 429

VOLTMETERS—AMMETERS—MILLI-AMMETERS

For Alternating Current

These instruments operate on the electromagnetic or movable iron principle in which is utilized the repulsion action between a fixed and a movable piece of iron placed within a field coil. Damping is accomplished by means of an air damper which is similar in design to that used in the larger size instruments. Voltmeters are made self-contained in the listed ranges up to and including 150 volts. Ranges above this value are provided with an external resistor box. For use with potential transformers, the 150 volt instrument can be supplied having the scale calibrated to indicate the primary voltage, if desired.

Instruments with surface type cases are made either front or back connected; flush type are always back connected. Contained in dust-proof pressed steel cases having dull black finish. All instruments have zero correcting devices mounted in center of name plate, operating from the outside of instrument.

Dimensions of surface type: Diameter of flange, 4⅜ inches; total depth, 2 inches; extension from panel, 2 inches. Of flush type: Diameter of flange, 4⅜ inches; diameter of body, 3 9/16 inches; total depth, 1⅞ inches; extension from panel, 2 7/64 inches. Scale lengths of both types, 2.7 inches; approximate weight, 1¼ pounds.

VOLTMETERS

Range Volts	Resistance Ohms	Scale Divisions	Price Each	Range Volts	Resistance Ohms	Scale Divisions	Price Each
10	68	50	**$20.00**	75	2500	75	**$20.00**
15	144	30	**20.00**	100	6400	50	**20.00**
20	192	40	**20.00**	125	8000	25	**20.00**
30	400	30	**20.00**	150	9400	30	**20.00**
50	1100	50	**20.00**	*250	16000	25	**25.00**
60	2000	60	**20.00**	*300	19000	30	**25.00**

*Provided with external resistor.

Note.—For voltmeters to be used on 500 cycles add **$3.00** list to the above price.

AMMETERS

Ammeters and milli-ammeters are self-contained in the ranges listed. Ranges above 50 amperes can be obtained by using 5 ampere instrument with a current transformer of proper range. In case where an overload capacity is required, a 6¼ ampere instrument can be provided with scale calibrated to indicate primary amperes. Prices quoted on application.

Range Amperes	Scale Divisions	Price Each	Range Amperes	Scale Divisions	Price Each
1	50	**$18.00**	10	50	**$18.00**
1.5	30	**18.00**	15	75	**18.00**
2	40	**18.00**	25	25	**18.00**
3	30	**18.00**	30	30	**18.00**
5	50	**18.00**	50	50	**18.00**
7.5	75	**18 00**			

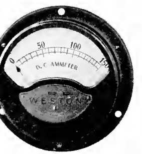
MILLI-AMMETERS

Range Milli-amperes	Scale Divisions	Price Each	Range Milli-amperes	Scale Divisions	Price Each
75	75	**$18.00**	300	30	**$18.00**
100	50	**18.00**	400	40	**18.00**
150	30	**18.00**	500	50	**18.00**
200	40	**18.00**	600	60	**18.00**
250	25	**18.00**	750	75	**18.00**

WESTON SWITCHBOARD INSTRUMENTS

ROUND PATTERN—MODEL 431

For Direct Current



Instruments listed below operate on the movable coil, permanent magnet principle. Damping of the movable element is by means of eddy currents generated in the metallic frame of the movable coil as the coil rotates in the magnetic field of the permanent magnet. Voltmeters are self-contained in all ranges up to 300 volts. Higher ranges are provided with external resistor boxes. The sensitivity of voltmeters is 100 ohms per volt. Instruments with surface type cases are made either front or back connected; flush type are always back connected. Contained in dust-proof pressed steel cases having dull black finish. Dimensions are the same as model 429.

VOLTMETERS

Range Volts	Scale Divisions	Price Each	Range Volts	Scale Divisions	Price Each
1	50	**$20.00**	25	50	**$20.00**
2	40	**20.00**	50	50	**20.00**
3	30	**20.00**	80	40	**20.00**
5	50	**20.00**	130	26	**20.00**
7.5	30	**20.00**	150	30	**20.00**
10	50	**20.00**	*250	50	**25.00**
15	30	**20.00**	*300	30	**25.00**

*Provided with external resistor.

MILLI-VOLTMETERS

Range Milli-volts	Scale Divisions	Price Each	Range Milli-volts	Scale Divisions	Price Each
50	50	**$20.00**	300	30	**$20.00**
75	30	**20.00**	400	40	**20.00**
100	50	**20.00**	500	50	**20.00**
150	30	**20.00**	600	60	**20.00**
200	40	**20.00**	750	30	**20.00**
250	50	**20.00**	800	40	**20.00**

AMMETERS

Have self-contained shunts up to 50 amperes. Higher ranges can be obtained by using a 50 millivolt milli-voltmeter in conjunction with a standard shunt of 50 millivolts drop.

Range Amperes	Scale Divisions	Price Each	Range Amperes	Scale Divisions	Price Each
1	50	**$18.00**	15	30	**$18.00**
1.5	30	**18.00**	20	40	**18.00**
2	40	**18.00**	25	50	**18.00**
2.5	50	**18.00**	30	30	**18.00**
3	30	**18.00**	50	50	**18.00**
5	50	**18.00**	*75	30	**20.25**
7.5	30	**18.00**	*100	50	**20.25**
10	50	**18.00**	*150	30	**20.25**

*Provided with external shunt.

MILLI-AMMETERS

Range Milli-amperes	Scale Divisions	Price Each	Range Milli-amperes	Scale Divisions	Price Each
50	50	**$18.00**	300	30	**$18.00**
75	30	**18.00**	400	40	**18.00**
100	50	**18.00**	500	50	**18.00**
150	30	**18.00**	600	60	**18.00**
200	40	**18.00**	750	30	**18.00**
250	50	**18.00**	800	40	**18.00**

WESTON SWITCHBOARD INSTRUMENTS

MODEL 151—For Alternating Current

Are of the soft iron or electro magnetic type, but have unique electrical and mechanical characteristics, and may be said to constitute an entirely new type of instrument. Indications are practically independent of frequency and wave form within the limits of commercial practice, and are not affected by the length of time instrument is in circuit. Are equally as dead beat as moving coil D. C. instruments; readings can be made with substantially the same accuracy on violently fluctuating loads as on steady loads. Scales are open and fairly uniform throughout four-fifths of the total range of deflection; voltmeters with a range above 300 volts are provided with external resistance coil. All have an addition index pointer that can be set to normal voltage from outside of case by means of a knurled brass knob. Use of this index makes it possible to detect light change in voltage at a considerable distance from instrument. Are mounted in dull black japanned cast iron cases. Diameter, 9⅞ inches; depth, 3⅜ inches. Length of scale are, 6½ inches. Ammeters are tested for insulation with 4,600 volts for one minute. Each case is provided with a ground terminal which must be connected to earth when the potential difference of circuits exceed 200 volts. When properly erected, ammeters are perfectly safe for use on circuits operating on a potential difference of 2,300 volts, but must be used with transformers on circuits of higher potential difference.

VOLTMETERS

Range in Volts	Price Each	Range in Volts	Price Each
75	**$30.50**	500	**$38.50**
125	**30.50**	600	**39.00**
150	**31.00**	750	**41.00**
300	**37.25**		

AMMETERS

Range in Amperes	Price Each	Range in Amperes	Price Each
1	**$29.50**	50	**$29.00**
2	**29.00**	75	**29.00**
3	**28.00**	100	**29.00**
5	**28.00**	150	**29.75**
10	28.00	200	**30.50**
15	28.00	250	**31.00**
20	28.00	300	**31.25**
25	**28.00**	400	**32.25**
30	**28.00**	500	**33.00**
40	**29.00**		

Note—Transformers must be used on all circuits carrying over 500 amperes; a value of 5 amperes for the secondary is recommended; instruments will be calibrated so that they will be direct reading.

WESTON SWITCHBOARD INSTRUMENTS

MODEL 267—For Direct Current

This instrument is one of a group of fan-shaped instruments, and differs radically in form and appearance from round pattern switchboard models. Possesses many important features which commend it to panelboard manufacturers and users in general. Are of the back connected type and are secured to switchboard by means of studs projecting from the rear of the case. Dimensions: Height, 3⅝ in.; width, 4⅝ in. Scale length, 2.5 in.

VOLTMETERS

Volts	Number of Scale Divisions	Price Each	Volts	Number of Scale Divisions	Price Each
1	50	**$16.25**	20	40	**$16.25**
1.2	60	**16.25**	25	50	**16.25**
1.5	30	**16.25**	30	30	**16.25**
2	40	**16.25**	40	40	**16.25**
2.5	50	**16.25**	50	50	**16.25**
3	30	**16.25**	60	30	**16.25**
4	40	**16.25**	75	75	**16.25**
5	50	**16.25**	80	40	**16.25**
6	30	**16.25**	100	50	**16.25**
7.5	75	**16.25**	120	60	**16.25**
8	40	**16.25**	130	65	**16.25**
10	50	**16.25**	150	30	**16.25**
12	60	**16.25**	300	30	***21.00**
15	30	**16.25**			

*Price includes external resistor.

MILLI-VOLTMETERS

Milli-Volts	Number of Scale Divisions	Price Each	Milli-Volts	Number of Scale Divisions	Price Each
50	50	**$16.25**	300	30	**$16.25**
75	75	**16.25**	400	40	**16.25**
100	50	**16.25**	500	50	**16.25**
150	30	**16.25**	600	30	**16.25**
200	40	**16.25**	750	75	**16.25**
250	50	**16.25**	800	40	**16.25**

AMMETERS

Amperes	Number of Scale Divisions	Price Each	Amperes	Number of Scale Divisions	Price Each
1	50	**$16.25**	10	50	$16.25
1.2	60	**16.25**	12	60	16.25
1.5	30	**16.25**	15	30	16.25
2	40	**16.25**	20	40	**16.25**
2.5	50	**16.25**	25	50	**16.25**
3	30	**16.25**	30	30	**16.25**
4	40	**16.25**	*50	50	**18.50**
5	50	**16.25**	*75	75	**18.50**
6	30	**16.25**	*100	50	**18.50**
7.5	75	**16.25**	*150	30	**18.50**
8	40	**16.25**			

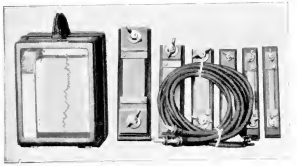
*Supplied with external shunt.

MILLI-AMMETERS

Milli-Amperes	Number of Scale Divisions	Price Each	Milli-Amperes	Number of Scale Divisions	Price Each
50	50	**$16.25**	300	30	**$16.25**
75	75	**16.25**	400	40	**16.25**
100	50	**16.25**	500	50	**16.25**
150	30	**16.25**	600	30	**16.25**
200	40	**16.25**	750	75	**16.25**
250	50	**16.25**	800	40	**16.25**

ESTERLINE-ANGUS GRAPHIC INSTRUMENTS

UTILITY WATTMETER AND ACCESSORIES



With This Equipment Any Load Whether Two or Three Wire D. C., Single or Polyphase A. C., Requiring From 10 to 800 Amperes, Can Be Recorded, at Voltages of 110, 220, 440, 500 or 600 Volts

General Description

The Esterline-Angus Graphic Meter is an instrument which writes a continuous record on a chart, of the quantity being measured, whether it be temperature, pressure, speed, volts, amperes or watts.

Indicating Scales

All Esterline-Angus instruments are combined curve drawing and indicating, each being provided with a printed scale in front of which the pointer travels. The pen can be lifted off the paper and the meter used as an indicating instrument.

Pen Element

Esterline-Angus pen element deserves special mention. It consists of a silver tube supported by tempered steel pivots, properly balanced, one end dipping into an ample ink reservoir, the other end carrying the writing pen. The pen is constantly in contact with the paper, writing a continuous line.

Standard Clocks

Esterline-Angus instruments are provided with the highest grade eight-day, jewel movement clock, that it is possible to build. Two extra heavy main springs are used to insure accurate timing. When so ordered clocks can be furnished so that the timing of all instruments in a plant or on a system can be synchronized.

Chart Speeds

Esterline-Angus instruments can be furnished with chart feeds of ¾ inch and 12 inch per hour, or 3 inch per hour, or 1½ inch and 6 inch per hour, or all of these hourly feeds. The minute feed attachment listed at **$35.00** extra permits of all hourly feeds, together with same feeds per minute. Change from hourly to minute feeds is done instantly.

Record Charts

Esterline-Angus records are 90 feet long and have ruled space 4½ inches in width. Timing ares are at ¾ inch intervals. Suitable range numbers are printed at regular intervals across the charts.

Zero Shifting Device

At a small additional cost, direct current instruments can be furnished with an external or internal attachment for shifting the zero position of the pen. The instrument can then be used as a center zero instrument or standard zero instrument.

Chronograph Pens

A chronograph pen can be furnished at a slight additional cost. This pen writes a line along one margin of the chart and is operated by a solenoid controlled by an external circuit. This feature is useful in connection with tests wherein certain operations are to be recorded.

ESTERLINE-ANGUS GRAPHIC INSTRUMENTS

GRAPHIC K. V. A. METER

This instrument embodies the correct basic principles of operation; it is not an adaptation of some previous type to the measurement of kilo-volt-amperes. The meter element is simple and substantial; it is of the induction type and indicates K. V. A. instead of K. W., by maintaining a fixed phase relation between the field produced by the current and that produced by the voltage.

The ease, clock and chart carrying mechanism are the same as in other standard Esterline graphic instruments. The scale is uniformly divided throughout its range. The instrument is well damped magnetically.

The accuracy is within the established limits for integrating watt hour meters, irrespective of commercial variations in temperature, frequency, wave form and voltage. It is equally accurate on balanced and unbalanced loads.

GRAPHIC RESISTANCE METER

In many industries there is a demand for an instrument which will record continuously the density of electrolytes, the concentration of solutions, etc.

For such purposes alternating current must be used to avoid electrolytic action on the electrodes and to prevent polarization.

By connecting this instrument to an alternating current circuit of proper voltage it will accurately record the resistance, the concentration or the density of any electrolyte in which the electrodes are immersed. The accuracy of the reading is not affected by commercial variations of voltage, frequency or wave form.

PORTABLE RESISTANCE METER

There are many places where it is desirable to have a measure of the concentration periodically, instead of a continuous record. For example, in the operation of boiler plants, where the water is treated by the introduction of chemicals into the boiler or a softening plant, the blowing down can be governed wholly by measuring the concentration periodically.

Similarly in surface condenser installations using salt water for cooling, a periodical test will detect leakage of salt water into the condensers.

The instrument is contained in a cast aluminum case and its construction throughout is exceedingly rugged. The scale is 7½ inches in width, and convenient to read. Using this instrument, a sample of water can be accurately measured for concentration in an instant, blowing down can be governed and priming prevented.

ESTERLINE-ANGUS GRAPHIC INSTRUMENTS

ALTERNATING CURRENT AMMETERS
Without Transformers or Shunts

Alternating current ammeters give full scale on 5, 7½ and 10 amperes. For larger capacities they are to be used in connection with current transformers of 5 ampere secondaries. Where an instrument is to be permanently connected to one transformer, a scale and chart may be furnished to indicate the line current direct.

These ammeters cannot be furnished with a zero center.

They are accurate on all commercial frequencies and direct current circuits within the range of their capacity but cannot be used with shunts.

Alternating current ammeters require approximately 14 volt amperes at full scale for their operation.

Portable instruments are furnished with flexible leads 5 feet long. No leads are furnished with wall and switchboard type.

Amperes Range—Within the capacity of the transformers or shunts used.

Portable Type—Price Each..... **$275.00**
Wall Type—Price Each..... **225.00**
Switchboard Type—Price Each..... **225.00**

POWER FACTOR INSTRUMENTS

Power factor meters can be furnished with a nominal voltage rating of 100 volts, 200 volts or 500 volts. The current coils are of 5 ampere capacity.

Separate external resistances may be furnished which will permit the use of 100 volt instruments on 200 or 500 volt circuits or both. Power factor instruments require two potential circuits and one current circuit. When used on circuits where the current exceeds 5 amperes, one current transformer is required. When used on circuits having a potential greater than the rated capacity of the instrument, two potential transformers are required.

The resistances of all power factor meters are designed for continuous operation on voltages 35 per cent in excess of the rated capacity. They require approximately 14 volt amperes in the current circuit and 6 watts at 100 volts in each potential circuit for their operation.

Portable instruments are furnished with flexible leads 5 feet long. No leads are furnished with wall and switchboard type power factor meters.

		Price Each		
		Portable Type	Wall Type	Switchboard Type
Amperes	Volts			
5	100	**$250.00**	**$215.00**	**$215.00**
5	200	**260.00**	**225.00**	**225.00**
5	500	**270.00**	**235.00**	**235.00**

THREE PHASE

Instruments can be built self-contained for two ranges only. Add **$10.00** list additional for second range basing price of instrument on highest range. External resistance for third range **$50.00** list additional.

TWO PHASE

Instruments can be built self-contained for three ranges. Add **$10.00** list additional for each range basing price of instrument on highest range.

ESTERLINE-ANGUS GRAPHIC INSTRUMENTS

PRODUCTION AND SERVICE RECORDERS

Production and service recorders are instruments which record continuously on a chart the time and rate at which certain operations or events occur. A record chart is driven at a uniform rate by a clock, and the record is made by pens operated by electromagnets. A single instrument can be fitted with any number ten. The operation to be recorded is made to close a switch, setting up an electric current which operates the electro-magnet controlling the corresponding pen. The instrument can be placed any desired distance from the switch.

These instruments have been applied to a large variety of uses, such as recording the time when machines go into and out of operation; the opening and closing of switches in automatic sub-stations; the time materials or parts are subjected to certain treatments, such as rubber curing, plating, etc.; the rate of production of machine tools; time study of operations, etc.

Switchboard and Wall Types

Portable Type, add..... **$30.00**

No. of Units	110 or 220 Volts	400 or 600 Volts	No. of Units	110 or 220 Volts	400 or 600 Volts
4	**$245.00**	**$285.00**	8	**$285.00**	**$325.00**
5	**255.00**	**295.00**	9	**295.00**	**335.00**
6	**265.00**	**305.00**	10	**305.00**	**345.00**
7	**275.00**	**315.00**	.....	.....	.....

Can be furnished in any voltage from 4 to 600 volts.

PORTABLE CURRENT TRANSFORMER

It has six primary ranges of 25, 50, 100, 200, 400 and 800 amperes. The first three ranges are of the wound primary type, while the last three are obtained by looping the conductor through the opening of the transformer.

Using an instrument having 5 ampere current coils the range of capacity when using these transformers is as follows:

Voltage of Circuit	Scale Capacity
100 Volts	.1 K. W. to 160 K. W.
200 Volts	.2 K. W. to 320 K. W.
500 Volts	.5 K. W. to 800 K. W.

Sometimes it is desirous to use several instruments simultaneously, a wattmeter and an ammeter, or a wattmeter, a power factor meter and an ammeter. To make this possible and still maintain accuracy, these transformers are made for a 25 volt-ampere rating, and are compensated for a load of 15 volt-amperes. A high accuracy is obtainable at loads of from 5 to 25 volt-amperes.

Cast aluminum case; 50% continuous overload without overheating. No secondary short circuiting is required.

Price Each..... **$75.00**

WESTINGHOUSE CURRENT TRANSFORMERS

TYPE K (DRY TYPE) INDOOR

Rated Voltage Two-Wire 4600, Three-Wire 1150
25 to 133 Cycles Capacity 25 Volt-Amperes
Compensated for 12½ Volt-Amperes

Two-Wire

Two-wire transformers comprise a line of low-priced transformers of good accuracy, available over a wide range of application. This type is listed for ammeter, wattmeter or watthour meter use, but may also be used for operating relays and circuit-breaker trip coils where the load at 4 amperes does not exceed 25 volt-amperes at 25 cycles or 65 volt-amperes at 60 cycles. They should not be used with relays where the circuit-breaker trip coil is connected in series with the relay. The transformers are arranged with the primary leads on opposite ends of the coil, an arrangement well adapted for general service conditions, including switchboard mounting.

Three-wire transformers are designed for use with watthour meters on three-wire distribution systems. The primary consists of two separate windings, one of which is connected in each outside wire of the three-wire system, and the secondary winding is connected to the watthour meter. When so connected the watthour meter measures the total output of the system.

TWO-WIRE

Mfrs. No.	Amperes Prim.	Amperes Sec.	Bore of Term. Inches	Wt., Lbs. Net	Wt., Lbs. Boxed	Price Each
303881	5	5	0.186	10	18	**$19.00**
303882	10	5	0.186	10	18	**19.00**
303883	15	5	0.186	10	18	**19.00**
303884	25	5	0.259	10	18	**19.00**
303885	50	5	0.384	10	18	**19.00**
303886	75	5	0.384	10	18	**19.00**
303887	100	5	0.558	10	18	**19.00**
303888	150	5	0.558	10	18	**19.00**
303889	200	5	0.745	10	18	**20.00**
303890	300	5	0.745	10	18	**22.00**
397625	400	5	0.745	10	18	**23.00**
303892	500	5	0.745	10	18	**25.00**
303893	750	5	0.918	14	22	**28.00**
303894	1000	5	1.120	17	25	**30.00**

THREE-WIRE

303869	5*	5	0.186	10	18	**20.00**
303870	10*	5	0.186	10	18	**20.00**
303871	15*	5	0.186	10	18	**20.00**
303872	25*	5	0.259	10	18	**20.00**
303873	50*	5	0.384	10	18	**20.00**
303874	75*	5	0.384	10	18	**20.00**
303875	100*	5	0.558	10	18	**20.00**
303876	150*	5	0.558	10	18	**20.00**
303877	200*	5	0.745	10	18	**21.00**
303878	300*	5	0.745	10	18	**23.00**
303879	400*	5	0.918	11	19	**24.00**
303880	500*	5	1.120	14	22	**26.00**

*The ampere rating refers to the current in the outside wires.

WESTINGHOUSE CURRENT TRANSFORMERS

TYPE KA (DRY TYPE) INDOOR

Rated Voltage 6900—Maximum 8000
25 to 133 Cycles Capacity 50 Volt-Amperes
Compensated for 25 Volt-Amperes

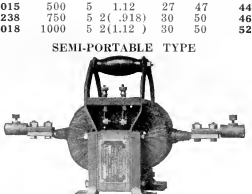
Switchboard Type

A high degree of accuracy in the ratio of primary to secondary current and a minimum phase displacement error are obtained in type KA transformers. Recommended for indoor use in all cases where highest accuracy is required. As shown in the illustrations, the transformers are arranged with the primary leads on the opposite ends of the coils, an arrangement well adapted for switchboard use. Lugs are provided for mounting purposes.

SWITCHBOARD TYPE

Mfrs. No.	Amperes Prim.	Amperes Sec.	Bore of Term. Inches	Wt., Lbs. Net	Wt., Lbs. Boxed	Price Each
125000	5	5	.186	24	44	**$38.00**
125001	10	5	.186	24	44	**38.00**
125002	15	5	.186	24	44	**38.00**
180642	25	5	.259	24	44	**38.00**
180643	50	5	.334	24	44	**38.00**
227058	75	5	.334	25	45	**38.00**
125008	100	5	.432	27	47	**38.00**
180644	150	5	.558	27	47	**39.00**
125011	200	5	.745	27	47	**40.00**
125013	300	5	.745	27	47	**42.00**
125014	400	5	.918	27	47	**43.00**
125015	500	5	1.12	27	47	**44.00**
305238	750	5	2(.918)	30	50	**46.00**
125018	1000	5	2(1.12)	30	50	**52.00**

SEMI-PORTABLE TYPE



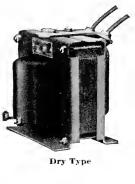
In the ordinary form of portable current transformer, extreme accuracy is sacrificed to obtain portability and convenience of application. The semi-portable transformer is the standard type KA fitted with a special carrying handle and terminals as shown above.

Mfrs. No.	Amperes Prim.	Amperes Sec.	Bore of Term. Inches	Wt., Lbs. Net	Wt., Lbs. Boxed	Price Each
269929	5	5	.186	28	48	**$45.00**
269930	10	5	.186	28	48	**45.00**
269931	15	5	.186	28	48	**45.00**
269933	25	5	.259	28	48	**45.00**
269936	50	5	.334	28	48	**45.00**
269938	75	5	.334	28	48	**45.00**
269940	100	5	.432	31	51	**45.00**
269942	150	5	.558	31	51	**46.00**
269944	200	5	.745	31	51	**47.00**
269946	300	5	.745	31	51	**49.00**
269947	400	5	.918	31	51	**50.00**

WESTINGHOUSE VOLTAGE TRANSFORMERS

Capacity, 200 Volt-Amperes—Compensated for 40 Volt-Amperes

Nominal Secondary Voltage, 115‡



Dry Type

Dry-type voltage transformers are mounted in end frames and are adapted for use on voltages up to 6900. Fuse blocks may be mounted on these end frames, when desired, for the 2300 volt class and for lower voltages. The oil-insulated type voltage transformers are designed for use on voltages from 2300 to 66,000. Up to 6900 volts they are mounted in cases made to fit in cells or in the limited space behind switchboards. Oil-insulated transformers for outdoor operation can be furnished for standard voltages—prices for outdoor transformers of voltages lower than those listed will be supplied on request. The semi-portable transformer is the standard dry-type transformer fitted with a special carrying handle and terminals.

The ratio of transformation should be such as to give a nominal voltage of 115 on the instruments. Thus, for a 2300 volt circuit, a 20:1 ratio should be used, making the normal voltage on the instruments 115. Transformers for any special ratio or voltage not listed herein can be supplied, but it is recommended that standard transformers be ordered whenever possible.

23,000 Volt Indoor Oil-Insulated

TYPE VS

WITHOUT OIL—INDOOR

Rated Primary Voltage	Voltage Ratio	25 Cycles Mfrs. No.	Apx. Wt.* Lb. Net	Boxed	Price Each	60 Cycles Mfrs. No.	Apx. Wt.* Lb. Net	Boxed	Price Each
230	2:1	**303917**	36	61	**$28.00**	**303911**	20	45	**$24.00**
460	4:1	**303918**	36	61	**31.00**	**303912**	21	46	**26.00**
575	5:1	**303919**	36	61	**33.00**	**303913**	21	46	**28.00**
2300	20:1	**369818**	66	91	**42.00**	**303914**	25	50	**30.00**
4600	40:1	**303921**	80	105	**55.00**	**303915**	45	70	**46.00**
6900	60:1	**303922**	95	120	**70.00**	**303916**	50	75	**60.00**

WITHOUT OIL—SEMI-PORTABLE

230	2:1	**303899**	39	69	**35.00**	**303895**	33	63	**31.00**
460	4:1	**303900**	41	71	**38.00**	**303896**	33	63	**33.00**
575	5:1	**303901**	48	78	**40.00**	**303897**	39	69	**35.00**
2300	20:1	**303902**	50	80	**44.00**	**303898**	39	69	**37.00**

GUM FILLED—OUTDOOR

2300	20:1	**370005**	102	130	**65.00**	**404401**	39	49	**50.00**
4600	40:1	**370006**	140	185	**75.00**	**370003**	81	103	**60.00**
6900	60:1	**370007**	147	192	**140.00**	**370004**	83	105	**125.00**

OIL INSULATED—INDOOR

Rated Primary Voltage	Voltage Ratio	25 Cycles Mfrs. No.	Gals. Oil	Apx. Wt.* Lb. Net	Boxed	Price Each	60 Cycles Mfrs. No.	Gals. Oil	Apx. Wt.* Lb. Net	Boxed	Price Each
2300	20:1	**303906**	2¾	117	160	**$55.00**	**303903**	2¾	86	111	**$45.00**
4600	40:1	**303907**	4	148	190	**65.00**	**303904**	4	103	138	**55.00**
6900	60:1	**303908**	4	162	210	**90.00**	**303905**	4	110	145	**80.00**

TYPE VC

OIL INSULATED—INDOOR

11500	100:1	**303910**	4½	210	250	**135.00**	303909	5	160	200	**110.00**
13800	120:1	**303924**	6	220	265	**140.00**	303923	6	170	210	**115.00**
23000	200:1	**271671**	20	485	665	**375.00**	271667	19	450	640	**375.00**
34500	300:1	**271672**	36	750	1000	**500.00**	271668	23	460	650	**500.00**
44000	400:1	**271673**	42	900	1150	**700.00**	271669	42	750	1000	**730.00**
66000	600:1	**271674**	85	1500	1675	**1000.00**	271670	85	1100	1470	**1000.00**

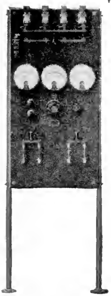
OIL INSULATED—OUTDOOR

11500	100:1	**369195**	6	205	265	**160.00**	**369194**	5½	173	223	**145.00**
13800	120:1	**369196**	6	205	265	**175.00**	**332242**	5½	173	223	**160.00**
23000	200:1	**271679**	20	535	715	**400.00**	**271675**	19	500	690	**400.00**
34500	300:1	**271680**	36	700	950	**600.00**	**271676**	23	510	700	**600.00**
44000	400:1	**271681**	42	975	1225	**850.00**	**271677**	42	825	1075	**850.00**
66000	600:1	**271682**	85	1400	1770	**1200.00**	**271678**	85	1200	1570	**1200.00**

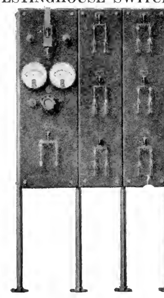
*Weights given do not include oil. Weight of oil per gallon is approximately 7 pounds net and 9 pounds gross.

‡Normal secondary voltage for 44,000 and 66,000 voltage transformers is 110 volts.

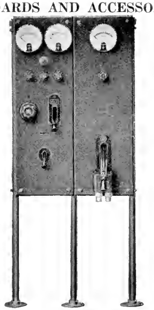
WESTINGHOUSE SWITCHBOARDS AND ACCESSORIES



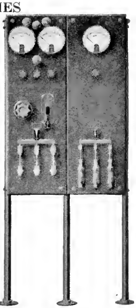
Type JD 3-Wire Switchboard Panel



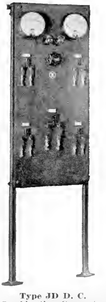
Type JD 2-Wire D. C. Switchboard Panels



Type JB A. C. Switchboard Panels



Type JA Switchboard Panels



Type JD D. C. Combination Generator and Feeder Panel

TYPE JA A. C.

Designed for the control of from one to three generators in small industrial plants and central stations operating alternating current systems below 500 volts and capacities up to 600 amperes per panel.

TYPE JB A. C.

Adapted to the control of single or parallel operated alternators and feeder circuits in small isolated stations and industrial plants. Furnished for 1200, 2400 or 3300 volts, 120 amperes per panel.

TYPE JD 2-Wire D. C.

Particularly adapted to the control of from one to three generators in small industrial plants and central stations operating direct current two-wire systems of 250 volts or less.

TYPE JD 3-WIRE D. C.

Designed for the control of from one to three generators in lighting and power plants of moderate capacity operating direct current 3-wire systems.

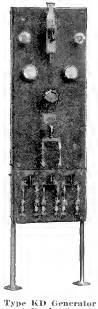
TYPE JD D. C. COMBINATION

Combination panels are designed to provide a complete switchboard in a single panel for the control of one generator with four feeders. They are intended for use in isolated plants operating a single unit, direct current, of 250 volts or less. The capacity of a panel is limited to 600 amperes for the generator and 200 amperes for each of the four feeders.

TYPE KD D. C.

Designed to provide a complete switchboard in a single panel of one or two sections to control one generator with not more than four feeders. They are intended for small isolated plants operating direct current systems of 250 volts or less.

The illustrations shown suggest some of the types and variations of standard switchboards. The exact capacities with detailed information will be furnished upon request.



Type KD Generator and Feeder Panel

BUS-BAR COPPER

The straps are hard, cold rolled or drawn to size; they have a conductivity of 98 per cent of Matthiesson's standard and are supplied in lengths of from 10 to 14 feet.

Briefly, the capacity of the bus is increased by making the spacing between straps of the same bus greater, amounting to an increase of approximately 25 per cent for ¼ inch spacing, instead of ⅛ inch spacing. On alternating current buses, mounted adjacent to each other, the mutual induction of returning circuits increases the heating greatly.

Attention is called to the fact that straps ⅛ inch in thickness should be used rather than half the number of ¼ inch straps, as the radiating surface is greater.

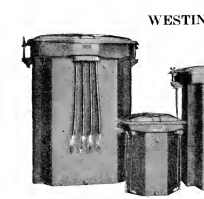
Size of Strap		Wt. Lb. Per 1000 Feet	Carrying Capacity Amperes 30° C Rise	
Thickness Inches	Width Inches		One Strap A. C. or D. C. Amperes	Two Strap D. C. ⅜ Inch Space Between Straps Amperes
⅛	½	240	100	....
1/16	1	240	150	....
⅛	1	480	200	....
⅛	1½	720	300	....
⅛	2	960	400	....
¼	2	1925	550	....
⅛	3	1440	600	1075
¼	3	2885	850	1500
⅛	4½	2165	925	1600
¼	4½	4330	1250	2250
⅛	6	2885	1225	2125

Prices will be quoted on application.

Your inquiries are solicited for complete Switchboards for either alternating or direct current service.

WESTINGHOUSE DISTRIBUTION TRANSFORMERS

POLE, PLATFORM OR MANHOLE MOUNTING
SINGLE OR THREE-PHASE—60 OR 25 CYCLES



Group of Steel-clad Type S Transformers

Distribution transformers range in capacity from 1 to 200 kilovolt-amperes and are listed for voltages from 460 to 46,000 volts, both 25 and 60 cycles. As no one form of construction is best adapted for this wide range of capacity and voltage, Westinghouse distribution transformers are made in four different forms of construction. The particular construction used is determined by consideration from all standpoints as to which design is best suited for the particular voltage, capacity and frequency.

Distribution transformers are required for pole, platform or manhole mounting, single or three-phase, and to distinguish not only the form of construction but also the class of service, Westinghouse distribution transformers are listed under eleven different types, as follows:

Type	Class of Service	Construction
S	Single-Phase, Pole or Platform-Mounting	Distributed-Shell
SA	Single-Phase, Pole or Platform-Mounting	Distributed-Shell
SM	Single-Phase, Manhole-Mounting	Distributed-Shell
SK	Single-Phase, Pole or Platform-Mounting	Rectangular-Core
SKA	Single-Phase, Pole or Platform-Mounting	Rectangular-Core
SKM	Single-Phase, Manhole-Mounting	Rectangular-Core

Form of Construction	General Application
Distributed-Shell	Single-Phase Transformers for 460, 575, 2300 and 4600 volt distribution service.
Rectangular-Core	Single-Phase Transformers for distribution service from 4600 to 23,000 volts. Three-Phase Transformers for distribution service from 460 to 23,000 volts.

Type	Class of Service	Construction
ST	Three-Phase, Pole or Platform-Mounting	Rectangular-Core
STM	Three-Phase, Manhole-Mounting	Rectangular-Core
SC	Single-Phase, Platform-Mounting	Cruciform-Core
SCT	Three-Phase, Platform-Mounting	Cruciform-Core
SS	Single-Phase, Platform-Mounting	Simple-Shell

Form of Construction	General Application
Cruciform-Core	Single and Three-Phase Transformers for 34,500 to 46,000 volt distribution service.
Simple-Shell	Large capacity 25 cycle transformers for distribution service from 2300 to 13,800 volts.

OMISSION ALLOWANCES

The following deductions are to be made from the net prices obtained by applying the discounts specified on the discount sheets for this section:

Oil—If oil is omitted with any of these transformers, a deduction may be made from the net price of the transformers of **$0.20** per gallon.

Fuse Blocks—If fuse blocks Nos. 147190 or 29865 are omitted with any of the transformers for which they are regularly supplied, a deduction of **$1.00** for each block may be made from the net price of the transformer.

When hanger irons are not desired with the transformers with which they are normally supplied, a deduction from the net price of the transformer may be made.

INSTRUCTIONS FOR ORDERING

Number includes transformer only. **List Price** includes transformer complete and, except as noted, the following:

Oil in quantity as specified in tables.

Hanger Irons, the numbers of which are shown in the tables. Where no hanger iron style number for a particular transformer is shown in the tables, the transformer is intended for platform mounting and hanger irons are not included.

Fuse Blocks—One set of fuse blocks, complete with lag screws, is included in the price of the transformer for voltages up to 2300, except where otherwise noted in the tables. Fuse blocks are not included in the price of transformers for voltages of 4600 or higher. Fuse wire or links are not included with fuse blocks and must be ordered separately.

On Ordering, Specify as Separate Items:

Transformer—State the capacity, phase, frequency, high and low voltages and number.

Oil—Specify the gallons of oil required for each transformer. The quantity required is given in the tables.

Hanger Irons—Order by number shown in the tables. (Number includes a pair of hanger irons.)

Fuse Blocks—Where the list price includes fuse blocks, either No. 29865 or No. 147190 can be ordered, as desired. Order two for each single-phase transformer or three for each three-phase.

RATINGS

Capacity and Voltage—The capacity and voltage ratings of Westinghouse distribution transformers are in agreement with the recommendations of the Apparatus Committee of the National Electric Light Association, and the Electric Power Club, determined under the conditions specified in the standardization rules of the American Institute of Electrical Engineers.

Secondary Voltage Classes—To facilitate listing, the low-voltage windings are given in three classes: Class 200, Class 400 and Class 500. Class 200 transformers are those whose highest low-voltage winding is nominally 200 volts (220, 230, 240). In like manner, class 400 transformers are those whose highest low-voltage winding is nominally 400 volts (440, 460, 480); and class 500 transformers are those whose highest low-voltage winding is nominally 500 volts (550, 575, 600).

All low-voltage windings of 480 volts and lower for single-phase transformers of capacities up to 100 kilovolt-amperes, are separated into two independent groups, the leads from which are brought out through the case. These two groups can be connected in multiple for the lower voltage and in series for the higher voltage; when connected for the higher voltage, the series connection may be used as the neutral lead for a three-wire circuit. Single-phase transformers of capacities above 100 kilovolt-amperes and with low-voltage windings for Class 200 are provided with low-voltage leads out of the case for 230 volts two-wire operation or for 230-115 volts three-wire operation, but the low-voltage coils cannot be connected in parallel for 115 volts.

In the tables listing the transformers, the high-voltage rating is given first, separated by the word to from the low-voltage rating.

Frequency—Single-phase transformers are listed for use on 25 and 60 cycle circuits. For other frequencies, prices will be furnished on request.

Polarity—Transformers up to and including 200 kv-a. and 7500 volts are of additive polarity. Transformers of higher voltage or larger capacity are of subtractive polarity.

WESTINGHOUSE DISTRIBUTION TRANSFORMERS

For Supplying Service Voltages 600 Volts and Below

SINGLE-PHASE—60 CYCLE

Type S

460 to 230-115 Volts—(Class 200)

Mfrs. No. Transformer	Mfrs. No. Hanger Iron	Cap. Kv-a	Gal. Oil	Wt. Lb. Shpg.†	Price Each
381878	109712	1½	1¼	110	$53.00
381879	109712	3	1¾	170	77.00
381880	109712	5	3½	225	103.00
381881	109712	7.5	6	335	135.00
381882	109712	10	9¼	400	164.00
381883	109712	15	9	440	216.00
381884	234482	25	18½	735	314.00‡
381885	234482	37.5	31	1075	422.00‡
381886	129384	50	37	1250	519.00‡
575 to 230-115 Volts—(Class 200)					
317250	109712	1½	1¼	95	53.00
317292	109712	3	1¾	145	77.00
258771	109712	5	3½	186	103.00
258772	109712	7.5	4½	234	135.00
258773	109712	10	7	340	164.00
258774	109712	15	9	378	218.00
258776	234482	25	14	581	314.00‡
258778	234482	37.5	22½	987	422.00‡
258779	234482	50	31	1142	519.00‡

HIGH EFFICIENCY TYPE

2300 to 230-115 Volts—(Class 200)
2300 to 460-230 Volts—(Class 400)

Mfrs. No. Transformer Only Class 200	Mfrs. No. Transformer Only Class 400	Mfrs. No. Hanger Iron	Cap. Kv-a	Gal. Oil	Wt. Lb. Shpg.†	Price Each
317251	....	109712	1½	1¼	107	$53.00
317293	317294	109712	3	1¾	170	77.00
222564	223364	109712	5	3½	225	103.00
222565	223365	109712	7.5	6	335	135.00
326424	326425	109712	10	9¼	400	164.00
222567	223367	109712	15	9	440	218.00
329757	329758	234482	25	18½	735	317.00
334304	334305	234482	37.5	31	1075	424.00
382747	382748	129384	50	37	1250	522.00

Type SK

360092	360093	§	75	72	1900	653.00‡
359257	359258	§	100	93	2260	785.00‡
281691¶	267132	§	150	118	3740	993.00‡
281692¶	267133	§	200	172	4000	1146.00‡

REDUCED EFFICIENCY TYPE

Type SA

317257	....	109712	1½	1¼	95	44.00
317300	268485	109712	3	1¾	140	65.00
261474	268486	109712	5	3½	185	87.00
261475	268487	109712	7.5	6	258	117.00
261476	268488	109712	10	10	320	142.00
261477	268489	109713	15	12	450	190.00
261479	268490	234482	25	18½	648	273.00
261481	268491	234482	37.5	34	930	362.00
379492	268492	234482	50	59	1390	443.00

Type SKA

300933	267095	§	75	75	1560	587.00‡
300934	267096	§	100	115	2176	727.00‡

†Shipping weight includes transformer boxed for shipment, complete with hanger irons and fuse blocks (when supplied) and oil in container. ‡Fuse blocks are not included in this price. §Hanger irons are not included with this capacity. ¶Low-voltage winding is arranged for 230 volts, two-wire and 230-115 volts three-wire operation, but the low-voltage coils cannot be connected in parallel for 115 volts.

WESTINGHOUSE DISTRIBUTION TRANSFORMERS

For Supplying Service Voltages

600 Volts and Below

SINGLE-PHASE—60 CYCLE

Type S

2300 to 575 Volts—(Class 500)

Mfrs. No. Transformer	Mfrs. No. Hanger Iron	Cap. Kv-a	Gal. Oil	Wt. Lb. Shpg.†	Price Each
317256	109712	1½	1¼	107	$53.00
379531	109712	3	1¾	170	77.00
268576	109712	5	3½	225	103.00
268577	109712	7.5	6	335	135.00
379532	109712	10	9¼	400	164.00
268579	109712	15	9	440	218.00
379533	234482	25	18½	735	317.00
379534	234482	37.5	31	1075	424.00
382755	129384	50	37	1250	522.00

Type SK

268583	§	75	70	1900	653.00‡
268584	§	100	93	2260	785.00‡
268585	§	150	118	3740	993.00‡
268586	§	200	170	4000	1146.00‡

Type S

4600-2300 to 230-115 Volts—(Class 200)
4600-2300 to 460-230 Volts—(Class 400)

Mfrs. No. Transformer Only Class 200	Mfrs. No. Transformer Only Class 400	Mfrs. No. Hanger Iron	Cap. Kv-a	Gal. Oil	Wt. Lb. Shpg.†	Price Each
326765	368334	109712	1½	4½	166	$72.00‡
326767	368335	109712	3	3½	202	96.00‡
326768	368336	109712	5	5½	290	122.00‡
326769	368337	109712	7.5	5	330	157.00‡
326770	368338	109712	10	11½	470	187.00‡
326771	368339	234482	15	14	643	242.00‡
326772	363945	234482	25	25	800	348.00‡

Type SK

326773	368368	129384	37.5	59	1250	461.00‡
326774	368369	129384	50	56	1253	562.00‡
326775	368370	§	75	75	1800	702.00‡
326776	368371	§	100	100	2180	833.00‡
326777¶	368372	§	150	153	4200	1037.00‡
326778¶	368373	§	200	183	4600	1200.00‡

6900-6585-6275-5960 to 230-115 Volts—(Class 200)
6900-6585-6275-5960 to 460-230 Volts—(Class 400)

267164	267175	109713	1.5	3½	180	93.00‡
267165	267176	109713	3	5	240	117.00‡
267166	267177	109713	5	7	305	142.00‡
267167	267178	109713	7.5	11½	452	177.00‡
267168	267179	109713	10	11	484	211.00‡
267169	267180	109714	15	17	720	268.00‡
267170	267181	109714	25	26	1110	378.00‡
305138	305125	129384	37.5	57	1275	496.00‡
305139	305126	129384	50	55	1360	600.00‡
305140	305127	§	75	75	1758	738.00‡
305141	305128	§	100	97	2105	857.00‡
281697¶	267187	§	150	153	4200	1083.00‡
281698¶	267188	§	200	183	4600	1275.00‡

†Shipping weight includes transformer boxed for shipment, complete with hanger irons and fuse blocks (when supplied) and oil in container. ‡Fuse blocks are not included in this price. §Hanger irons are not included with this capacity ¶Low-voltage winding is arranged for 230 volts, two-wire and 230-115 volts three-wire operation, but the low-voltage coils cannot be connected in parallel for 115 volts.

WESTINGHOUSE DISTRIBUTION TRANSFORMERS

For Supplying Service Voltages
600 Volts and Below

SINGLE-PHASE—60 CYCLE

Type SK

11500-10925-10350 to 230-115 Volts—(Class 200)
11500-10925-10350 to 460-230 Volts—(Class 400)

Mfrs. No.						
Transformer Only Class 200	Class 400	Hanger Iron	Cap. Kv-a	Gal. Oil	Wt Lb. Shpg.†	Price Each
306944	306954	109713	2.5	7½	350	$165.00
306945	306955	109713	5	12	510	208.00
306946	306956	109713	10	18	760	269.00
306947	306957	109714	15	18	780	329.00
306948	306958	109715	25	34	1240	437.00
306949	306959	129384	37.5	59	1240	560.00
306950	306960	129384	50	56	1300	667.00
307131	307132	§	75	75	1825	825.00
306951	306961	§	100	96	2262	967.00
379115¶	379116	§	150	153	4100	1212.00
379117¶	379118	§	200	183	4700	1412.00

13800-13110-12420 to 230-115 Volts—(Class 200)
13800-13110-12420 to 460-230 Volts—(Class 400)

306964	306974	109713	2.5	7½	350	198.00
306965	306975	109713	5	12	510	236.00
306966	306976	109713	10	18	760	303.00
306967	306977	109714	15	24	950	369.00
306968	306978	109715	25	34	1240	479.00
306969	306979	129384	37.5	59	1200	595.00
306970	306980	129384	50	54	1300	689.00
366535	366536	§	75	96	2022	850.00
306971	306981	§	100	92	2234	992.00
379068¶	379069	§	150	153	4100	1234.00
379070¶	379071	§	200	183	4650	1438.00

23000-21850-20700 to 230-115 Volts—(Class 200)
23000-21850-20700 to 460-230 Volts—(Class 400)

306984	306994	§	5	15	750	429.00
306985	306995	§	10	26	1042	490.00
306986	306996	§	15	30	1250	538.00
306987	306997	§	25	39	1673	631.00
306988	306998	§	37.5	51	2070	743.00
306989	306999	§	50	56	2460	842.00
306990	307000	§	75	90	3100	1034.00
306991	307001	§	100	108	3650	1196.00
317911¶	317910	§	150	148	4900	1412.00
379054¶	379055	§	200	200	5800	1618.00

Type SC

34500-32775-31050 to 230-115 Volts—(Class 200)
34500-32775-31050 to 460-230 Volts—(Class 400)

267489	267490	§	10	43	1150	547.00
267491	267492	§	15	43	1200	599.00
267493	267494	§	25	70	1640	692.00
267495	267496	§	37.5	80	1970	803.00
267497	267498	§	50	160	2780	906.00
267499	267500	§	75	170	3800	1096.00
267501	267502	§	100	165	4290	1275.00
267505¶	267506	§	150	180	4800	1592.00
267507¶	267508	§	200	215	6720	1771.00

†Shipping weight includes transformer boxed for shipment, complete with hanger irons (when supplied) and oil in container. ‡Hanger irons are not included with this capacity. §Low-voltage winding is arranged for 230 volts two-wire and 230-115 volts three-wire operation but the low-voltage coils cannot be connected in parallel for 115 volts.

Oil weighs approximately 7 pounds net per gallon and 8¼ pounds shipping.

Note.—The above transformers are suitable for delta-connection but not suitable for star-connection on the high-voltage side when banked for three-phase operation.

WESTINGHOUSE DISTRIBUTION TRANSFORMERS

For Supplying Distribution Voltages
Above 600 Volts

SINGLE-PHASE—60 CYCLE

Type SK

‡6600-6270-5940 to 2300 Volts

Mfrs. No. Transformer	Hanger Iron	Cap. Kv-a	Gal. Oil	Wt. Lb. Shpg.†	Price Each
267189	109713	1.5	6	265	$102.00
267190	109713	3	5	267	128.00
267191	109713	5	11	473	157.00
267192	109713	7.5	10½	504	195.00
267193	109713	10	10	510	232.00
267194	109714	15	16	720	295.00
267195	109714	25	26	1110	415.00
305162	129384	37.5	59	1275	521.00
305163	129384	50	56	1360	630.00
305164	§	75	75	1758	775.00
305165	§	100	95	2105	900.00
267201	§	150	153	4200	1083.00
267202	§	200	186	4600	1275.00

‡11000-10450-9900 to 2300 Volts

307004	109713	2.5	12	489	173.00
307005	109713	5	11½	525	218.00
307006	109714	10	17	750	282.00
307007	109714	15	24	950	329.00
307008	109715	25	34	1240	437.00
307009	129384	37.5	59	1230	560.00
307010	129384	50	56	1310	667.00
267231	§	75	75	1780	825.00
307011	§	100	96	2262	967.00
307012	§	150	153	4100	1212.00
379131	§	200	180	4700	1412.00

‡13200-12540-11880 to 2300 Volts

307014	109713	2.5	12	489	208.00
307015	109713	5	11½	525	248.00
307016	109714	10	18	750	303.00
307017	109714	15	22	940	369.00
307018	109715	25	34	1250	479.00
307019	129384	37.5	59	1230	595.00
307020	129384	50	56	1320	689.00
305151	§	75	75	1780	850.00
307021	§	100	96	2260	992.00
307205	§	150	153	4100	1234.00
377815	§	200	183	4650	1438.00

‡22000-20900-19800 to 2300 Volts

307024	§	5	15	750	429.00
307025	§	10	26	1042	490.00
307026	§	15	30	1250	538.00
307027	§	25	38	1673	631.00
307028	§	37.5	51	2070	743.00
307029	§	50	59	2460	842.00
307030	§	75	90	3100	1034.00
307031	§	100	106	3650	1196.00
379056	§	150	145	4900	1412.00
370580	§	200	200	5800	1618.00

Type SC

‡33000-31350-29700 to 2300 Volts

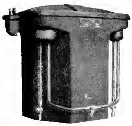
247090	§	10	43	1150	547.00
250384	§	15	43	1200	599.00
247091	§	25	70	1640	692.00
250385	§	37.5	80	1970	803.00
247092	§	50	160	2780	906.00
247093	§	75	170	3800	1096.00
250386	§	100	165	4290	1275.00
247094	§	150	180	4800	1592.00
247095	§	200	215	6720	1771.00

†Shipping weight includes transformer boxed for shipment, complete with hanger irons (when supplied) and oil in container. ‡Can be operated ⅓ per cent above rated voltage. §Hanger irons are not included with this capacity.

Note.—With the exception of the 6600 volt transformers which can be star-connected for 11,450 volts, the above transformers are suitable for delta-connection but not suitable for star-connection on the high voltage side when banked for three-phase operation. The 2300 volt low-voltage windings can be star-connected for three-phase operation but 6600 volt transformers should not be star-connected on both high and low-voltage windings.

WESTINGHOUSE BALANCE COILS

TYPE S—FOR ALTERNATING CURRENT USE



A balanee eoil is an auto-transformer used for obtaining a number of lower-voltage eireuits from an alternating eurrent distributing system. The three-wire type is listed for obtaining from a 230 volt two-wire eireuit a three-wire 115 volt distribution system. Five-wire types are listed for obtaining from a 460 volt eireuit a five-wire distribution system.

The rated kilovolt-ampere eapaeities of these eoils represent the maximum unbalaneing allowable between any two eireuits. The balanced load does not pass through the balance eoil. It is the general praetiee, where the degree of unbalance is not known, to use a balanee eoil with a eapacity of approximately 25 per eent of the total maximum eapacity of the circuit upon which it is used. Built with type S eonstruetion.

Number includes balanee eoil only. Priee ineludes halanee eoil eomplete with neeessary oil, but not with hanger irons or fuse bloeks, whieh must be ordered separately. When ordering speeify number, capaeity and voltage. Give quantity of oil required for all balanee eoils.

THREE-WIRE

220-110 Volts, **230-115 Volts**, 240-120 Volts

Mfrs. No. Balance Coil	Mfrs. No. Hanger Iron	Cap.‡ Kv-a.	Gal. Oil	Approx. Wt. Lb. Net*	Approx. Wt. Lb. Shpg.†	Price Each
60 Cycles						
305255	**109712**	1½	¾	59	70	**$46.00**
258723	**109712**	3	¾	59	70	**54.00**
279264	**109712**	5	1¾	105	135	**62.00**
258725	**109712**	7.5	1¾	132	175	**74.00**
258726	**109712**	10	1¾	132	205	**86.00**
258727	**109712**	15	4½	233	325	**110.00**
258729	**109712**	25	10	280	430	**140.00**
25 Cycles						
305254	**109712**	1½	¾	59	70	**84.00**
138840	**109712**	3	1¾	105	135	**104.00**
138842	**109713**	5	3½	205	275	**128.00**
138843	**109713**	7.5	7	320	425	**160.00**
138844	**109713**	10	9¾	395	540	**190.00**
138845	**109733**	15	14	520	710	**252.00**

FIVE-WIRE

440-330-220-110 Volts
460-345-230-115 Volts
480-360-240-120 Volts

Mfrs. No. Balance Coil	Mfrs. No. Hanger Iron	Cap.‡ Kv-a.	Gal. Oil	Approx. Wt. Lb. Net*	Approx. Wt. Lb. Shpg.†	Price Each
60 Cycles						
305256	**109712**	1½	1	80	110	**60.00**
249438	**109712**	3	1¾	132	175	**88.00**
249439	**109712**	5	3½	205	275	**120.00**
249440	**109712**	7.5	5¾	320	425	**164.00**
249441	**109712**	10	5¾	320	425	**208.00**
249442	**109712**	15	9½	680	990	**280.00**

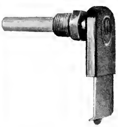
*Balance coil only. Oil weighs approximately 7 pounds per gallon.

†Ineludes balanee coil boxed for shipping and neeessary oil in eontainer. Shipping weight of oil is approximately 8 pounds per gallon.

‡The maximum unbalaneing allowable between any two eireuits.

Note.—These ean be used with satisfaetory performanee on any voltage within 10 per cent greater or less than normal.

WESTINGHOUSE TRANSFORMER LOAD INDICATORS



A deviee arranged for mounting in plaee of the drain plug or preferably in the side of the tank wall a few inehes below the oil level in a distribution transformer for the purpose of indieating whether any pre-determined temperature of the transformer has been reached or exeeeded. It is so eonstrueted that when this pre-determined temperature has been reaehed, a yellow flag, or semaphore, drops into view to give a visible indication of the faet.

Several applieations ean be made of this deviee, the most important being to indicate when a transformer is overloaded and should be ehanged. Another use is in determining whether transformers operating in a bank or in parallel are properly dividing the load. The deviee ean also be used to obtain more effieient loading of transformers, sinee underloaded units can be deteeted by setting the indieator to trip at a low temperature. Failure to trip with the low setting is an indieation that the transformer is underloaded. The indieator ean be set to trip the semaphore at any pre-determined temperature within the range of adjustment, by setting the trigger aeeording to the following table of approximate temperatures:

Trigger Setting	0	2	4	6	8	10
Approximate Tripping Temperature Degrees Centigrade	50	60	70	80	90	100

The temperature indieator is made with two sizes of plugs. No. 311735 has a ½ ineh plug, and No. 320927 has a ¾ ineh plug. These two style numbers differ only in respect to the diameter of the plug. These plugs will fit the majority of transformers, as ean be seen from the following tabulation showing the sizes of the drain plugs used with the 2300 volt type S transformer:

Kv-a.	Size of Plug Standard Pipe Thread	Kv-a.	Size of Plug Standard Pipe Thread
1.5	½ inch	37.5	¾ ineh
3	½ ineh	50	¾ ineh
5	½ ineh	75	¾ ineh
7.5	¾ ineh	100	¾ ineh
10	¾ inch	150	1½ inch
15	¾ ineh	200	1½ ineh
25	¾ ineh		

If the drain outlet of the transformer is larger than ¾ inch standard pipe thread, whieh is the thread on the indieator plug, the proper pipe bushing should be added to the indieator plug to adapt it to the transformer drain outlet.

Mfrs. No.	Size of Plug* In.	Carton	Appx. Wt. Lb. Net Each	Appx. Wt. Lb. Shipping†	Price Each
Indicator Complete with Plug					
311735	½	12	½	8	**$4.00**
320927	¾	12	½	8	**4.00**
Plug without Indicator					
356968	½	12	¼	4	**1.00**
356969	¾	12	¼	4	**1.00**
Indicator without Plug					
363217	....	12	¼	4	**3.00**

*Standard pipe thread.
†Shipping weight per carton.

WESTINGHOUSE COOPER-HEWITT RECTIFIER OUTFITS

TYPE W—VEHICLE BATTERY CHARGING

Lead or Edison Cells

Type W rectifier outfits are designed to furnish a small, light, inexpensive outfit, for use where frequent adjustment is not necessary, as where the same battery will always be charged.

This type is not automatic in operation, that is, it will not start itself or stop itself, and if the line voltage fails temporarily the rectifier will not restart itself. To start it the bulb must be tilted by hand by means of the tilting handle. Type W outfits are mounted on solid cast iron frame. Bulb is completely protected.

60 CYCLE OUTFITS

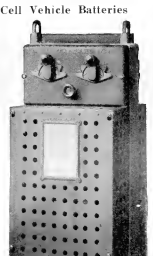
Mfrs. No.	A.C. Volts	No. of Cells—Lead	No. of Cells—Edison	D.C. Volts	D.C. Amps.	Shpg. Wt. Lb.	Price Each
233907	110	38-46	56-66	76-120	30	280	**$270.00**
233908	220	38-46	56-66	76-120	30	265	**270.00**

TYPES AA AND AN OUTFITS

For Charging Lead Cell Vehicle Batteries

The type AN outfit is not automatic in operation; that is, it will not start itself or stop itself, and if the line voltage fails temporarily, the rectifier will not restart itself. To start it, the bulb must be tilted by hand, by means of a tilting handle.

The type AA outfit has the same features as the type AN and in addition a tilting magnet for automatic starting, and a relay circuit breaker. In case of a failure of the line voltage, which will stop the rectifier, the cutout closes the tilting transformer circuit so that the rectifier is ready to restart itself when the voltage is again applied.



60 CYCLE OUTFITS

Mfrs. No.	A.C. Volts	No. of Cells	D.C. Volts	D.C. Amps.	Shpg. Wt. Lb.	Price Each
			Type AN			
145578	110	14–32	28– 85	30	485	**$405.00**
145579	220	14–32	28– 85	30	485	**405.00**
145580	110	20–44	40–120	30	575	**450.00**
145581	220	20–44	40–120	30	575	**450.00**
			Type AA			
145582	110	14–32	28– 85	30	520	**425.00**
145583	220	14–32	28– 85	30	510	**425.00**
145584	110	20–44	40–120	30	600	**470.00**
145585	220	20–44	40–120	30	600	**470.00**

WESTINGHOUSE COOPER-HEWITT RECTIFIER OUTFITS

FOR CHARGING TELEPHONE AND TELEGRAPH BATTERIES

Telephone Rectifiers

All telephone exchanges require a source of direct current to charge the power battery. It is desirable that the charging equipment be such as to permit the batteries to be charged while in use which means that pulsations in the charging current must be kept at a minimum value. Further it is essential that the telephone lines be insulated from the power lines. The type AT rectifiers meet both of these requirements by the use of a large amount of sustaining inductance in the direct current circuit, and by the use of insulating transformers instead of auto transformers.

Telegraph Rectifiers

For obvious reasons it is not essential to keep the pulsations in the charging current at a minimum value as in the telephone rectifiers and, therefore, instead of having a separate coil of sustaining inductance, this feature is incorporated in the transformer winding. Aside from this exception the telephone and telegraph rectifiers are similar.

These rectifiers are built around a central cast iron frame which carries the transformer, sustaining and reactance coils, dial switches and other details. Cast iron covers enclose the top part of the rectifier, the front cover also serving as a support for the dial switch star plates and regulating handles. Perforated sheet steel covers extend from the top cast covers to the feet of the outfit, completely enclosing all parts. The rectifier is entirely self-contained and no live parts are exposed. All leads are brought out through porcelain bushings located in the top rib of the rectifier frame.

Outfit complete with one bulb. Instruments should be ordered as separate items, if desired, or an instrument panel as listed.

Non-Automatic*

Mfrs. No.	D.C. Amps.	D.C. Volts	A.C. Volts	A.C. Cycles	No. of Cells	Shpg. Wt. Lb.	Price Each
220241	10	16– 30	110–220	60	8–11	485	**$250.00**
220246	30	22– 45	110–220	60	17–11	535	**490.00**
312207	15	240–320	110–220	60	120	740	**750.00**
312208	30	240–320	110–220	60	120	977	**1150.00**
356896	10	130–180	110–220	60	66	650	**460.00**

Automatic†

300305	50	22– 65	110–220	60	11–25	1000	**720.00**
356897	50	22– 65	110–220	50	11–25	1100	**900.00**

*In starting it is necessary to operate the bulb tilting device by hand.

†Equipped with a single phase induction motor which automatically tilts the bulb when the alternating current is applied.

WESTINGHOUSE COOPER-HEWITT RECTIFIER OUTFITS

TYPES AL AND WL OUTFITS
For Motion Picture Projection

Type WL Rectifier

The motion picture industry now recognizes the advantages of direct current over alternating for arc lamps for projection work. The greater ease of focusing, greater light efficiency, less delicate and hence less frequent adjustment of carbons, steadier light, greater economy of carbons, greater maximum light intensity and decreased breakage of condenser lenses are established advantages.

Where the supply is alternating current, the mercury arc rectifier is the most compact, least expensive and most efficient form of converter.

Two types are offered. The type AL outfit is the earlier form, which includes a dial switch for control of arc current and in which all parts are totally enclosed. In the type WL outfit these two features are eliminated for the sake of simplicity and lower first cost. Both are automatic in starting, both are equipped with ready means for operating the arc on alternating current in case of temporary lack of a bulb, and in both regulation is automatically accomplished without loss of power by means of reactance. While the type WL outfit at a very much lower first cost has a higher efficiency, about 72 per cent, and a higher power factor, about 70 per cent, the type AL outfit still has application because of its greater flexibility and because all parts are enclosed.

60 CYCLE OUTFITS

Type AL

Mfrs. No.	D.C. Amps.	D.C. Volts	A.C. Volts	Appx. Wt. Lb. Net	Appx. Wt. Lb. Shpg.	Price Each
111125	30	55	110	510	610	**$435.00**
111126	30	55	220	510	610	**435.00**
186049	40	55	110	800	1000	**520.00**
186050	40	55	220	800	1000	**520.00**
186051	50	55	110	800	1000	**575.00**
186052	50	55	220	800	1000	**575.00**

Type WL

252694	30	55	110	250	350	**275.00**
252695	30	55	220	250	350	**275.00**
252696	40	55	110	325	425	**400.00**
252697	40	55	220	325	425	**400.00**
252698	50	55	110	350	450	**415.00**
252699	50	55	220	350	450	**415.00**

WESTINGHOUSE COOPER-HEWITT RECTIFIER OUTFITS

ACCESSORIES FOR RECTIFIER OUTFITS

INSTRUMENT PANEL

Measuring instruments are not supplied regularly with rectifier outfits because most electric vehicles are equipped with meters that are sufficiently accurate for charging purposes. Where meters are required with any of the type A rectifiers, an instrument panel should be ordered.

Mfrs. No.	Description	Price Each
124967	For Nos. 220243, 220244, 220245, 220246, 145578, 145579, 145582 145583, 111125 or 111126	**$35.00**
124968	For Nos. 145580, 145581, 145584, or 145585	**35.00**

TIME SWITCH

Where batteries are to be charged at night or at times when attendance is not available, a time switch should be used to terminate the charge at a predetermined time. In case it is found that the charge is not complete, it can be completed in a comparatively short time when attendance is available. The switch consists of a 75 ampere type F carbon break circuit breaker enclosed in a cast iron case and arranged to be tripped by the alarm mechanism of a clock.

Mfrs. No.	Description	Price Each
152526	For Use with All Types Rectifier Outfits	**$14.00**

RECTIFIER BULBS AND RENEWALS

No. 222321

No. 321055

Mfrs. No.	Description—Bulbs For	Price Each
125185	Type E No. 152999	**$10.00**
125186	Type E Nos. 154611, 222305, 222307, 220241	**11.00**
222324	Type E Nos. 222306 and 222308	**11.00**
222323	15 Ampere Type W and AT	**14.00**
231580	30 Ampere Type W	**21.00**
157957	30 Ampere Type AA, AN, or 20 and 30 Ampere Type AT	**21.00**
114847	50 Ampere Type AE or 40 and 50 Ampere Type AT, AL and WL	**37.00**
321055	15 and 30 Ampere Type AT Nos. 312207 and 312208	**45.00**

WESTINGHOUSE RECTIGON BATTERY CHARGERS

SHOWING RADIO B STORAGE BATTERY CHARGING WITH WESTINGHOUSE RECTIGON

Method of Connecting Rectigon, Lamp and Battery

The Rectigon may be used to charge Radio "B" storage batteries at the current rates given in the following table, by connecting the proper size lamp in series with the battery and rectigon. When all the connections are correctly made, the lamp will light. It will not reach full brilliancy as the charging current will always be less than the rated current of the lamp. Should the lamp glow dimly or fail to light, connect its lead to the other side of the A. C. circuit.

Diagram of Connections 2 Ampere Outfit

Five ampere outfits and other outfits with terminal boards are most easily arranged for "B" storage battery charging by connecting the lead from the lamp to one of the terminals.

Note that the positive "+" clip is not used and it should be so placed as to be entirely insulated from any other connections or ground.

Choose a lamp, an ordinary 110 or 115 volt Mazda B or C lamp, of the proper size to give the charging rate recommended by the battery manufacturer. Charge according to the instructions from the battery manufacturer. When the charge is to be discontinued, disconnect first the A. C. circuit and then remove the clips from the battery terminals.

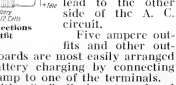


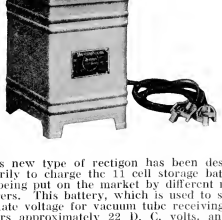
Diagram of Connections—5 Ampere Outfit and 2 Ampere Outfits with Terminal Boards

Rating of Lamp Watts	Approximate D-C Current — One, 11 or 12 Cell Battery	Two, 11 or 12 Cell Batteries Connected in Series
25	.075	.....
40	.125	.090
60	.165	.125
75	.250	.175
100	.275	.225
150	.350	.275

Table of charging rates with various sizes of lamps. The current values are for start of charge conditions. As the charge progresses the battery voltage will rise and the current will decrease slightly.

WESTINGHOUSE RECTIGON BATTERY CHARGERS

PRIVATE GARAGE OR RADIO TYPE RECTIGON OUTFITS



This new type of rectigon has been designed primarily to charge the 11 cell storage batteries now being put on the market by different manufacturers. This battery, which is used to supply the plate voltage for vacuum tube receiving sets, delivers approximately 22 D. C. volts, and the rectigon has been so constructed that it will give a charge of approximately .2 ampere at normal line voltage.

Although this rectigon has been designed primarily to charge the 11 cell storage battery, it has also been supplied with a tap in the transformer winding which will enable the user to charge either a 3 or 6 cell battery at approximately 2½ amperes to a 3 cell and 1½ amperes to a 6 cell battery. At the top of the transformer is mounted a fuse block which is so arranged that when the fuse is in the extreme left position, the rectigon will charge an 11 cell storage battery at approximately .2 ampere and when in the extreme right position will charge a 3 or 6 cell battery at the specified rate. The fuse arrangement is such that only one fuse can be inserted at a time, thereby eliminating the possibility of wrong connection.

As this type of rectigon is similar to the private garage type outfit, it is operated in the same manner.

Inasmuch as this rectigon is of the auto transformer type, it should not be used while the radio battery is in operation, and before being operated care should be taken to disconnect the radio B battery from the receiving apparatus. This same precautionary measure applies when charging the A or filament battery.

The number and price include outfit complete with bulb.

Mfrs. No.	A.C. Volts	A.C. Cycles	No. of Cells	D.C. Volts	D.C. Amps	Wt Lb. Boxed	Price Each
376793	115	60	3 to 6	7½–15	2–1½	11½	**$18.00**
376336	115	60	3 to 6	7½–15	5–3	20	**28.00**

Renewable Bulbs for Above Outfits

Rectigon No.	Bulb No	Ampere Capacity	Net Wt. Ounces	Price Each
376793	**277681**	2	2	**$4.00**
376336	**289414**	5	5	**8.00**

Renewable Fuse

For rectigon No. 376336 any standard 15 ampere plug fuse can be used.

WESTINGHOUSE RECTIGON BATTERY CHARGERS

6 AMPERE, 75 VOLT RECTIGON OUTFIT

For Public Garages and Battery Service Stations

Garage type rectigon for charging, starting, lighting and ignition batteries affords an extremely flexible equipment for garages and service stations where the number of batteries to be charged is variable.

All parts are mounted on a cast iron base and are protected by the base and by a pressed steel cover which can be readily removed to permit replacement of fuses or bulb. Both the alternating current and direct current circuits are protected against overloads and short circuits by means of 15 ampere plug fuses which can be quickly replaced.

A flush type BX ammeter, mounted on the front of the base, indicates the current output on the direct current or battery side. Below the ammeter is a snap switch, which controls both the direct current and alternating current circuits. On the right hand side is a dial switch handle for controlling the direct current.

Mfrs. No.	A.C. Volts	A.C. Cycles	No. of Cells	D.C. Volts	D.C. Amps.	Wt. Lb. Boxed	Price Each
296304	115	60	3 to 30	6–75	6	85	**$130.00**
332976	115	50	3 to 30	6–75	6	85	**140.00**

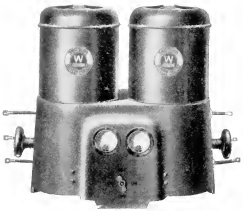
Renewable Bulbs for Above

Rectigon No.	Bulb No.	Ampere Capacity	Net Wt. Ounces	Price Each
296304 } 332976 }	**289416**	6	5	**$8.00**

WESTINGHOUSE RECTIGON BATTERY CHARGERS

12 AMPERE, 75 VOLT RECTIGON OUTFIT

For Large Garages and Battery Service Stations



The 12 ampere 75 volt rectigon is similar in application to the 6 ampere 75 volt outfit, but has twice the capacity of the smaller size. This unit is flexible in control, and, because of its simplicity, is easy to operate.

This rectigon in appearance and construction resembles the smaller unit of this type. A snap switch mounted on the front of the base controls the alternating current source of supply. The direct current output, indicated by two BX ammeters, is regulated by two dial switch handles on the sides of the base. The two alternating current leads are on one side of the base, and the three direct current leads—one of which is positive and the other two negative—are on the other side.

This outfit is provided with two mounting straps for wall mounting. Should this method not be desired, the apparatus may be placed on a bench or any convenient shelf. The leads are so arranged as not to interfere with any method of installation.

The first cost is lower than two of the 6 ampere, 75 volt rectigons. This type of rectigon embodies all the simplicity of the smaller size and has an additional feature in the higher charging rate or higher battery capacity.

Mfrs. No.	A.C. Volts	A.C. Cycles	No. of Cells	D.C. Volts	D.C. Amps.	Wt. Lb. Boxed	Price Each
301860	115	60	3 to 60	7½–75	12	104	**$220.00**
333005	115	50	3 to 60	7½–75	12	143	**240.00**
333004	230	50	3 to 60	7½–75	12	145	**240.00**
352777	230	60	3 to 60	7½–75	12	145	**220.00**

Renewable Bulbs for Above

Rectigon No.	Bulb No.	Ampere Capacity	Net Wt. Ounces	Price Each
301860 } 333005 } 333004 } 353777	**289416**	6	5	**$8.00**

WESTINGHOUSE DIRECT CURRENT LIGHTNING ARRESTERS

TYPE MP—100 TO 750 VOLTS

Direct or Alternating Current

For Car, Line and Station Use

Provided for use on voltages from 100 to 750, alternating or direct current. They are especially adapted, however, for protection of direct current railway motors or power motors, and are arranged for mounting on either car, pole or wall. Contained in cast-iron boxes, which are practically unbreakable. They are light in weight, small in size, and convenient for handling and mounting. One-half of the casting can be easily removed, making access to the arrester easy for inspection or repairs. Waterproof against rain or splashing of water from car wheels.

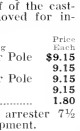
In the car mounting form the mounting lugs are on the top half of the casting, so that the arrester can be mounted on a floor sill. The bottom half can be opened for inspection. For line and wall mounting the arrester is supplied with the mounting lug on the bottom half of the casting. The upper half can be removed for inspection.

Mfrs. No.	Volts	Mounting	Price Each
230110	100 to 400	On Wall or Pole	**$9.15**
269573	100 to 400	On Cars	**9.15**
154297	400 to 750	On Wall or Pole	**9.15**
47417	400 to 750	On Cars	**9.15**
247950	Carborundum Block		**1.80**

Approximate weight of complete arrester 7½ pounds net, 9 pounds boxed for shipment.

TYPE K-3—FOR VOLTAGES UP TO 1500

For Car, Line and Station Use
Railway and Lighting Circuits



The type K-3 is for line, car and station protection on direct current circuits of 100 to 1500 volts. It is especially applicable for protection of direct current railway and power motors, and for direct current generators and rotary converters. When properly connected it is also valuable in preventing flashovers on the commutator of rotary converters.

This type of arrester should be used where local conditions are so severe that a higher degree of protection is justified than can be obtained with the lower priced type MP arrester.

Arrester is mounted in a reactangular cast-iron box with a waterproof cover. The spark-gap chamber of the form having a spark-gap is accessible by removing a small separate cover. The arrester can be easily mounted underneath the car or on the roof of the car, and is suitable for mounting in any position on car, pole or wall.

100-1500 Volts

Mfrs No.	Description	Apx. Wt. Lb. Net	Boxed	Price Each
256369	Without Gap or Resistance	23	42	**$38.25**
256372	With Gap and Resistance	26	45	**51.75**
186818	Resistance Rod	....	....	**1.35**

WESTINGHOUSE DIRECT CURRENT LIGHTNING ARRESTERS

TYPE A ELECTROLYTIC

For Voltages Up to 2450

For Station Use—Railway and Lighting Circuits

For use in generating stations or substations up to 2450 volts and are provided for indoor mounting only. Similar in construction to the type AK alternating current arresters for higher voltages, except that no charging resistance is required. The same aluminum trays are used. These trays are mounted in an iron tank of ample strength, and of such size as to provide sufficient oil for cooling purposes under all possible operating conditions. The area of aluminum tray or plate exposed to electrolyte is twice that of any other alternating current aluminum arrester and several times that of any other direct current aluminum arrester; hence this type A arrester exceeds in discharge capacity any other arrester for similar service. It is not limited like competing types to any particular kilowatt capacity of circuit.

It is provided with a fuse and with a gap for insulating the arrester from the line, both mounted on top of the tank. This gap can be easily short-circuited for the purpose of charging the arrester, which operation should be performed once a day. The arrester can be operated on direct current with the gap closed, but in this case the leakage current disintegrates the aluminum trays and the electrolyte, giving them a much shorter life than when a gap is used.

In addition to the daily charging of the arrester, it is necessary to inspect the condition of the trays and replace the electrolyte about once a year. If the arrester is used with gap short-circuited, this period should be reduced to once in six months.

The number and price includes the arrester complete and ready for installation.

Mfrs. No.	Voltage	No. of Trays	Elec-tro-lyte†	Gal. Oil	Approx. Wt. Lb.‡ Net	Boxed	Price Each
201555	0– 350	2	1	9	42	72	**$74.00**
120830	350– 700	3	2	9	42	72	**78.00**
201556	700–1150	4	3	9	42	72	**83.00**
201557	1150–1400	5	4	13	42	83	**87.00**
201558	1400–1750	6	5	13	42	83	**91.00**
165047	1750–2100	7	6	13	42	83	**94.50**
201559	2100–2450	8	7	13	42	83	**99.00**

Accessories

141539	Type D Electrolyte (8 oz. bot.)	**.50**

For other accessories see alternating current electrolytic arresters.

†Number of bottles of electrolyte No. 141539.

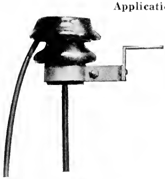
‡Weights do not include oil or electrolyte, net weight of oil 7½ pounds per gallon; shipping weight, 9 pounds per gallon.

WESTINGHOUSE LIGHTNING ARRESTERS

TYPE LV AUTOVALVE

For the Protection of Distribution Transformers For Voltages Up to 37,000

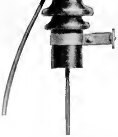
Application



2500 Volt Arrester with Form T Mounting Bracket

The protection of distribution systems in general consists of the protection of the transformers. These transformers are distributed over a considerable area where frequent maintenance attention is impracticable. It is essential that arresters for the protection of distribution transformers be low enough in cost to warrant their use with even the smallest transformers, that the arrester be free from the necessity of periodic maintenance except for very infrequent inspections, and that they must be such as to permit ready mounting on the pole or cross arm. In addition to meeting these economic requirements, it is necessary that the protection afforded be of a high order. However, the requirements from the standpoint of protection are generally somewhat reduced by the fact that in locations where arresters are installed fairly densely over the system, the energy of a surge is taken care of by several arresters in multiple.

The performance requirements, then, are that the initial relief discharge voltage be at a value safe for the insulation being protected and that a sufficient number of arresters of any given quality be installed in a given area to give adequate discharge current capacity. The application of distribution arresters should be considered from the standpoint of the protection system rather than the protection of individual transformers. Each arrester installation should be made with a view to the conditions on the system in that immediate locality.



5000 and 7500 Volt Arrester with Form H Mounting Bracket

Distinctive Features

These arresters, besides giving a very high quality performance, meet all requirements of the service for which they are designed as regards installation and maintenance. Various kinds of mounting brackets are provided to suit various installation conditions. Provision is made for mounting directly under the line wire, saving cross arm room.

Installation is made easy by mounting the bracket first, then placing the arrester in the bracket.

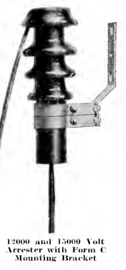
The arrester may be turned in the bracket through any part of 360 degrees to bring the line lead to any desired position. The ground lead is brought out centrally through the bottom of the case. Both leads are well insulated. The mounting brackets are made of galvanized iron.

WESTINGHOUSE LIGHTNING ARRESTERS

TYPE LV AUTOVALVE

For the Protection of Distribution Transformers For Voltages Up to 37,000

Construction



12000 and 15000 Volt Arrester with Form C Mounting Bracket

Autovalve distribution arresters are made in six sizes, for 2500, 3500, 7500, 15000, 25000 and 37000 volts maximum. The 7500 and 15000 volt sizes are also used, with a certain portion of the active elements omitted, for 5000 and 12000 volt applications respectively. The arrester consists of a column of discs of the proper number for the line voltage, with a spark gap in series, all enclosed in a porcelian case from which for 15000 volts and below leads of weatherproof insulated wire are brought out for line and ground connections. Leads are not furnished with the 25000 and 37000 volt sizes, but terminals are provided to which the leads are readily connected at time of installation.

Number includes the arrester complete with leads but without mounting bracket. The mounting bracket must be ordered separately. Price includes arrester complete with any standard type of mounting bracket. Information on Pierce clamps which may be used for mounting arresters equipped with Form C mounting brackets on wooden or angle iron cross arms furnished on request.

Mfrs. No.	Max. Voltage	Dimens., In. Hght.	Di.	Lgth. Line Lead	Wt. Lb. Net	Bxd.	Std Pkg.	Price Each
363254	2500	5⅝	6	14	7	8	12	**$10.50**
375880	3500	6¼	6	14	8	9	12	**14.00**
363271	5000	9¾	6	16	11½	13	6	**23.00**
363255	7500	9¾	6	16	11½	13	6	**33.00**
363272	12000	16¼	6	18	18	21	3	**38.00**
363256	15000	16¼	6	18	18	21	3	**50.00**
394427	25000	24⅝	7	*	37	56	1	**120.00**
394428	37000	32⅞	7	*	45	70	1	**180.00**

*No leads furnished with these arresters. Copper terminals are furnished to which customer attaches his own leads.

MOUNTING BRACKETS

Form C—Clamps against side of arm, using Pierce clamp.

Mfrs. No.	Net Wt.Lb.	Std. Pkg.	Price Each
363389	1½	6	**$0.60**

Form H—Horizontal strap, mounts against side of cross arm, using two bolts or two lag screws.

363390	1½	6	**.60**

Form T—Top of cross arm mounting strap, using one bolt or one lag screw.

363391	1¾	6	**.60**

Form C—Clamps against the side of cross arm, using Pierce clamp.

363392	3	3	**1.20**

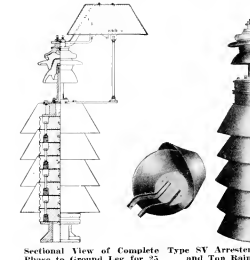
Form H—Horizontal strap, mounts against side of cross orm. using two bolts or two lag screws.

394429	3¼	1	**1.20**

WESTINGHOUSE TYPE SV AUTOVALVE LIGHTNING ARRESTERS

FOR STATION USE

On A. C. Light and Power Circuits



Sectional View of Complete Type SV Arrester with Gap Removed

Phase to Ground Leg for 25 Ky. Outdoor Service and Top Rain Sheds

The type SV (Station Autovalve) arresters are large capacity arresters built on the autovalve principle. They are applicable where the best possible protection is required since every characteristic needed for the highest degree of protection is provided.

Not only does the type SV arrester give maximum protection but it is simple in construction, is easily installed and does not require constant attention. This latter feature makes it particularly suitable for automatic substations and similar installations where there is no regular attendant.

Application Voltage—In applying type SV Autovalve lightning arresters it should be carefully borne in mind that it is not the normal operating voltage of the circuit that determines the rating of the arresters to be used. The maximum rated voltage of the arresters must be at least equal to the maximum operating voltage where the arresters are installed.

Testing—No attempt should be made to test Autovalve arresters for break-down with test boxes or power voltages. Such a test has no similarity to service conditions, it gives no information, and, in addition, is likely to ruin the arrester. One of the advantages of the Autovalve arrester is that it does not have to handle power current as the counter voltage of the arrester prevents any such current from following the discharge. The arrester will discharge enormous amounts of transient current but it is not provided with thermal capacity for dynamic overvoltage.

Charging—No charging or similar operation is necessary. The arrester needs only to be connected to the line to be put into service.

Choke Coils—Choke coils should be used with all type SV lightning arresters. To be of greatest benefit the choke coils used should be of high inductance. Choke coils are especially effective for steep wave-front surges of the order of line voltage. Such a surge will be reflected at double value and will cause the arrester to discharge.

Mounting—Four bolt holes in the base castings permit type SV arresters to be mounted easily and quickly on any suitable base, whether plate, channel iron, wood or concrete. Small weight and compactness of the Autovalve arrester make it particularly adaptable for platform mounting.

WESTINGHOUSE TYPE SV AUTOVALVE LIGHTNING ARRESTERS

FOR STATION USE

On A. C. Light and Power Circuits

INSTRUCTIONS FOR ORDERING

Style number and list price include the arrester complete, without choke coils or disconnecting switches which should be ordered separately. The arrester ordered should be one having maximum rated voltage at least equal to the maximum operating voltage that may exist at any time at the point where the arrester is to be applied. If the line voltage is to be increased in the near future the arrester should be ordered for the intended line voltage. Sufficient units then can be short circuited for the operation on the lower voltage. When the increase in voltage is to take place after an interval of a year or more, the above plan can be followed or the higher voltage arrester may be ordered with but sufficient units for operation at the existing voltage.

INDOOR ARRESTERS

Three-Phase

Mfrs. No.	Voltage Normal	Voltage Min.	Voltage Max.	*No. of Units Per Arrest.	Net Wt. Lb.	Price Each
393359	.....	**1000**	**3000**	†	**150**	**$160.00**
393360	.....	**3001**	**5000**	**6**	**190**	**225.00**
393361	.....	**5001**	**7500**	**9**	**220**	**292.00**
393362	.....	**7501**	**15000**	**15**	**270**	**575.00**
393363	.....	**15001**	**25000**	**24**	**390**	**925.00**
393364	.....	**25001**	**37000**	**33**	**500**	**1292.00**
393365	**44000**	**37001**	**50000**	**48**	**1300**	**1958.00**
393366	**66000**	**50001**	**73000**	**66**	**1800**	**2817.00**

OUTDOOR ARRESTERS

Three-Phase

393367	.....	**1000**	**3000**	†	**150**	**383.00**
393368	.....	**3001**	**5000**	**6**	**190**	**450.00**
393369	.....	**5001**	**7500**	**9**	**225**	**517.00**
393370	.....	**7501**	**15000**	**15**	**320**	**867.00**
393371	.....	**15001**	**25000**	**24**	**450**	**1225.00**
393372	.....	**25001**	**37000**	**33**	**575**	**1755.00**
393373	**44000**	**37001**	**50000**	**48**	**1400**	**2592.00**
393374	**66000**	**50001**	**73000**	**66**	**1800**	**3617.00**

INDOOR ARRESTERS

Single-Phase

Mfrs. No.	Voltage Minimum	Voltage Maximum	*No. of Units Per Arrester	Net Wt. Lb.	Price Each
393809	**1000**	**3000**	†	**120**	**$142.00**
393810	**3001**	**5000**	**4**	**90**	**200.00**
393811	**5001**	**7500**	**6**	**112**	**256.00**
	Two-Phase, Three-Wire				
393815	**1000**	**3000**	†	**150**	**160.00**
393816	**3001**	**5000**	**6**	**130**	**225.00**
393817	**5001**	**7500**	**11**	**170**	**256.00**
	Two-Phase, Four-Wire				
393821	**1000**	**3000**	†	**190**	**284.00**
393822	**3001**	**5000**	**8**	**135**	**400.00**
393823	**5001**	**7500**	**12**	**225**	**512.00**

OUTDOOR ARRESTERS

Single-Phase

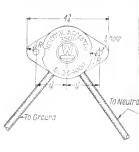
393812	**1000**	**3000**	†	**120**	**330.00**
393813	**3001**	**5000**	**4**	**140**	**423.00**
393814	**5001**	**7500**	**6**	**144**	**493.00**
	Two-Phase, Three-Wire				
393818	**1000**	**3000**	†	**150**	**383.00**
393819	**3001**	**5000**	**6**	**210**	**450.00**
393820	**5001**	**7500**	**11**	**220**	**517.00**
	Two-Phase, Four-Wire				
393824	**1000**	**3000**	†	**190**	**660.00**
393825	**3001**	**5000**	**8**	**280**	**846.00**
393826	**5001**	**7500**	**12**	**290**	**996.00**

*Number of units style No. 323730 required for one complete arrester. For temporary operation at lower voltage reduce list price of standard arrester by list price of number of units omitted to obtain arrester of desired voltage. List price of unit style No. 323730 is **$30.00**.

†Special units used for 3000-volt arresters only.

WESTINGHOUSE NEUTRAL LIGHTNING ARRESTERS

FOR DISTRIBUTION CIRCUITS



Designed for the protection of the neutral wire of distribution transformers which are installed on grounded neutral systems where the neutral wire is grounded at the power station or substations but not at the transformer stations.

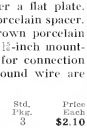
This arrester consists essentially of a spark gap between non-arcing metal electrodes, one of which is a spherical section and the other a flat plate. The electrodes are separated by a porcelain spacer. The entire gap is mounted in a brown porcelain block which is provided with two ½-inch mounting holes. Leads of ample length for connection to the neutral wire and to the ground wire are provided.

Mfrs. No.	Volts	Apx. Wt., Lb. Net	Gross	Std. Pkg.	Price Each
364000	0 to 300	¼	½	3	**$2.10**

WESTINGHOUSE MULTI-GAP LIGHTNING ARRESTERS

For A. C. Light and Power Circuits

TYPE MP—SINGLE POLE



For 100 to 750 Volts, A.C. or D.C.

Description, application, etc., same as type MP arrester for car, line and station use. For wall or pole mounting.

Volts	Approx. Wt. Lb., Boxed	Price Each
100–400	9	**$9.15**
400–750	9	**9.15**

TYPE CR—SINGLE POLE

For 1000 to 5000 Volts, Any Frequency

For Distribution Transformers and Series Lighting Circuit Protection—Unlimited Application

Mfrs. No.	Description	Price Each
*240916	Type CR Arrester, Iron Box	$10.70
*272985	Type CR Arrester, Wood Box	10.70
*242017	Gap Unit, including Resistor Rod	6.00
*210233	Resistor Rod	1.90
†275976	Type CR Arrester, Wood Box	18.75
†280837	Gap Unit, not including Resistor Rod	3.25
†257788	Resistor Rod	3.25

†5000 volts. *2500 volts.

TYPE W—SINGLE POLE

For 5000 to 13,200 Volts, All Frequencies

For Distribution Transformer Protection Unlimited Application

Mfrs. No.	Type	Voltage	Apx. Wt., Lb. Net	Boxed	Price Each
179914	Indoor	6600	9½	21¼	**$28.00**
201673	Outdoor	6600	10	25	**29.50**
214316	*Insulator	.....	.....	.....	**†3.45**

*For use with two type W arresters in series on 13,200 volt circuits.

†Supplied without additional charge when specified on order for type W arresters in quantities of one insulator for each set of two arresters.

WESTINGHOUSE MULTI-GAP LIGHTNING ARRESTERS

TYPE LE—LOW EQUIVALENT

Single Pole, for Voltages Up to 39,000

No. 277814 No. 46185 No. 277817

These arresters consist of series and shunt-gaps between non-arcing metal cylinders mounted in porcelain containers; also shunt or series and shunt rod resistors mounted in fuse clips. Both the gap units and the resistors are mounted on a marble base. In the outdoor form the arrester is encased in a weatherproof wooden box. Limited application type arresters are for use on circuits not exceeding 2000 to 7500 volts but limited in capacity to 2000 kilovolt-amperes in terms of normal generator capacity, except that where used on circuits connected to the secondary of transformers of not over 1000 kilovolt-amperes capacity the generator capacity may be disregarded.

Neutral arrester No. 46185 consists of two non-arcing metal cylinders, with a gap between, mounted on a porcelain base, and in a weatherproof iron box. It is used as a neutral arrester on grounded neutral circuits up to 5000 volts and ungrounded circuits up to 1100 volts; for the protection of series alternating current arc lamps and incandescent lamp fixture transformers; and for the protection of transformer secondaries up to 300 volts and 200 kv-a. capacity.

LIMITED APPLICATION

Voltage	Indoor Arresters Wt.Lb. Boxed	Mfrs. No.	Price Each	Outdoor Arresters Wt.Lb. Boxed	Mfrs. No.	Price Each
0–300†	.....	.....	.....	.....	**46185**	**$ 4.15**
2000–3500	25	**262071**	**$20.00**	45	**262067**	**28.00**
3501–5000	27	**277817**	**28.25**	50	**262054**	**46.00**
5001–7500	30	**262063**	**42.00**	55	**277814**	**56.00**

Resistance Rods, No. 278822 for 2000-3500 volts, No. 277823 for 3501-5000 volts, No. 277713 for 5001-7500 volts **1.50**

UNLIMITED APPLICATION

2000–3500	150	**16598**	**$29.50**	240	**201597**	**$48.00**
3500–5175	160	**16599**	**40.00**	256	**201598**	**60.00**
5175–7500	175	**16600**	**60.00**	280	**201599**	**88.50**
10000–14500	225	**16602**	**96.00**	360	**201610**	**155.00**
19000–27500	375	**25028**	**265.00**	600	**201603**	**385.00**
27500–39000	450	**25029**	**290.00**	700	**263045**	**645.00**

Resistance Rods

No. 98062, 2000-7500 volts **1.50**
No. 210610, 10,000-14,500 volts **1.80**
No. 214245, 19,000-29,000 volts **2.40**

Tell Tale Papers

Form No. 5491, for Shunted Gaps, per Pad of 50 ..... **2.50**

Form No. 5492, for Series Gaps, per Pad of 50 ..... **2.50**

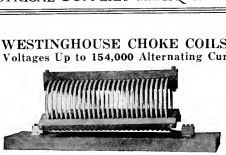
Gap Unit

No. 9587, all Voltages and Type LE Arresters **2.00**

†This is not a type LE arrester, but a Safety Spark Gap arrester. Maximum voltage application as a spark-gap on transformer secondary 0-1100 volts.

WESTINGHOUSE CHOKE COILS

For Voltages Up to 154,000 Alternating Current



Type D-9 7500-Volt Choke Coil (Indoor Only)

The coil in these types is a helix of aluminum rod in the 200 and 400-ampere capacities, and of copper in capacities of 600 amperes and above. The type D-9 coil is about 9 inches in diameter and contains 13 turns. Bracing clamps are provided to rigidly separate the turns and give mechanical strength to the helix.

Type D-9 coils are listed for outdoor mounting up to 154,000 rated volts, and a separate line of indoor type D-9 coils is listed for voltages up to 7500 normal rated volts. All ratings of indoor or outdoor type D-9 above 66,000 volts are adapted to inverted mounting.

TYPE D-9 INDOOR CHOKE COILS

Marble Base

Mfrs. No.	Max. Voltage	Amp.	Apx. Wt., Lb. Net	Boxed	Price Each
230225	7500	200	55	110	**$33.00**
230226	7500	400	63	118	**54.00**
230227	7500	600	85	140	**73.00**
236440	7500	800	105	160	**91.50**
236441	7500	1000	125	180	**110.00**
236442	7500	1400	145	205	**142.50**
236443	7500	1700	169	230	**175.00**
236444	7500	2000	203	265	**205.00**
236445	7500	2400	240	305	**240.00**

TYPE D-9 INDOOR OR OUTDOOR CHOKE COILS

Invertible for 88,000 Volts and Above

Wall or Pipe Mounting

Channel Iron Base

Mfrs. No.	Voltage Normal	Voltage Maximum	Amp.	Wt.Lb. Boxed	Price Each
285371	.....	15000	200	140	**$42.50**
277954	.....	25000	200	160	**50.50**
277809	.....	37000	200	180	**58.00**
262062	44000*	.....	200	205	**63.00**
285374	66000*	.....	200	210	**76.50**
315328	110000†	.....	200	300	**170.00**
315329	132000†	.....	200	320	**185.00**
315330	154000†	.....	200	500	**212.50**
285372	.....	15000	400	160	**59.50**
277956	.....	25000	400	180	**66.50**
262047	.....	37000	400	200	**75.00**
262055	44000*	.....	400	225	**78.00**
285375	66000*	.....	400	230	**91.50**
315331	110000†	.....	400	320	**186.00**
315332	132000†	.....	400	340	**200.00**
315333	154000†	.....	400	525	**230.00**
285373	.....	15000	600	280	**77.50**
277955	.....	25000	600	235	**84.50**
277807	.....	37000	600	255	**91.50**
277816	44000*	.....	600	280	**97.50**
285376	66000*	.....	600	295	**110.00**
315334	110000†	.....	600	375	**207.50**
315335	132000†	.....	600	395	**222.50**
315336	154000†	.....	600	570	**250.00**

*Choke coils rated at 44,000 normal voltage have a maximum rating of 50,000 volts and choke coils rated at 66,000 normal voltage have a maximum rating of 73,000 volts.

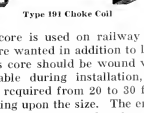
†Choke coils rated at 110,000 normal voltage or higher may be applied on systems having a maximum voltage not exceeding 5% above rated voltage.

‡On account of the considerable weight of these coils they should be mounted in a horizontal position. For other mounting, either vertical or ceiling mounting, special coils will be supplied.

WESTINGHOUSE CHOKE COILS

TYPE 191 CHOKE COIL CORES

Voltages Up to 1500 Direct Current



Type 191 Choke Coil

Type 191 core is used on railway cars where choke coils are wanted in addition to lightning arresters. This core should be wound with a layer of trolley cable during installation, for which there will be required from 20 to 30 feet extra of cable, depending upon the size. The end turns can be fastened by passing the cable through holes in the end washers or central cylinder.

The current capacity depends upon the size of cable used.

The type 191-A core has a plain wooden drum and insulating end washers carried on sheet metal end brackets.

Approximate Dimensions

Mfrs No.	Type	Apx. Wt., Lb. Net	Boxed	Price Each
170643	191-A	5	8	**$2.65**

TYPE D-6 INDOOR CHOKE COILS

For Voltages Up to 15,000 Maximum

The type D-6 choke coil, which is a suitably mounted coil of insulated wire wound on a small diameter wooden core, may be used where only a moderate degree of protection is desired.

This type is available in two forms up to 100 amperes capacity for two voltage classes; 5000 volts and 15,000 volts, both using the same coil, but different mountings.

The 5000-volt coil consists of the standard core and winding, with iron feet for support. This coil is adapted to mounting in any position.

The 15,000-volt coil consists of the standard core and winding supported by porcelain pillar insulators on the bases of which are clamped flat iron mounting castings.

Mfrs. No.	Max. Voltage	Amps.	Mounting	Apx. Wt., Lb. Net	Boxed	Price Each
237782	5000	25	*	14	30	**$11.30**
237783	5000	50	*	15	31	**12.00**
237784	5000	75	*	16	32	**15.00**
237785	5000	100	*	18	34	**15.90**
242687	15000	25	†	20	38	**21.90**
242688	15000	50	†	21	39	**25.00**
242689	15000	75	†	22	40	**27.50**
242690	15000	100	†	24	42	**30.50**

*Iron feet. †Porcelain Pillar Insulators.

CEDAR POLES

SPECIFICATIONS FOR STANDARD OR "WOODS RUN" WESTERN RED CEDAR POLES
4 INCH 20 FOOT AND LARGER

1—Live Timber—All poles must be manufactured from live growing cedar timber.
2—Manufacture—All poles must be peeled, knots trimmed close and butts and tops sawed square.
3—Variation in Length—Poles may be 6 inches longer or 3 inches shorter than length specified.
4—Knots—Knots are not a defect, if sound, trimmed smoothly and do not plainly impair the strength of the pole.
5—Discoloration—Discoloration is not a defect.
6—Miscellaneous Defects—No poles shall contain sap rot, woodpecker holes, plugged holes or evidence of having been eaten by ants.
7—Rot—Tops of poles must be free from rot. Butt rot in center, including small ring rot, shall not exceed 10 per cent of the area of the butt. Butt rot of a character which impairs the strength of the pole above the ground line is a defect.
8—Cat Faces—Sound cat faces are not a defect if no part of the cat face shows on the upper one-fifth of the length of the pole or within two feet above or one foot below the ground line.
9—Dead or Dry Streaks—A sound dead or dry streak is not a defect if it does not cover more than 25 per cent of the surface of the pole at any one point.
10—Minimum Measurements—(a) The tops of all poles shall have a minimum circumference measurement as shown in table No. 1. (b) The extreme butt of all poles shall have a minimum measurement as shown in table No. 2. (c) Poles having a decided swell or flare at the butt shall have a sufficiently larger measurement at butt to insure a reasonable measurement at the ground line.
11—Short Kinks—Short kinks are not permitted.
12—Reverse Sweep—Reverse sweep and two way sweep, meaning a sweep in two planes, is permitted, provided a straight line drawn from the center of pole at top to center of pole at ground lines does not leave the pole at any point.
13—One Way Sweep—One way sweep is permitted provided it does not exceed the maximum.
14—Method of Measuring Sweep—That part of the pole below the ground line not to be taken into consideration. Tightly stretch a tape line from point at the ground line (see paragraph 15) on the side of the pole where the sweep is greatest to the upper surface at the top of the pole, and having done so, measure widest point from tape to surface of pole and if, for illustration, upon a 30 foot pole the widest point does not exceed 4 inches, this pole shall be accepted.
15—Explanation of Term "Ground Line"—The term "Ground Line" as used in these specifications shall mean a point on the pole a distance of 4 feet on 20 foot, 5 feet on 25 foot and 30 foot and 6 feet on 35 foot and longer poles from the extreme butt.

TO DETERMINE CAR LOAD QUANTITIES OF WESTERN RED CEDAR POLES

Weights of Western Red Cedar Poles to be used in figuring carload lots of poles for shipment from either Eastern or Western Yards.

Standard or Woods Run Poles

Size	Wt. Lb.	Size	Wt. Lb.	Size	Wt. Lb.	Size	Wt. Lb.
4 Inch 20 Foot....	100	7 Inch 25 Foot....	325	7 Inch 35 Foot....	550	8 Inch 60 Foot....	1600
5 Inch 20 Foot....	135	8 Inch 25 Foot....	400	8 Inch 35 Foot....	650	8 Inch 65 Foot....	1850
6 Inch 20 Foot....	190	6 Inch 30 Foot....	325	7 Inch 40 Foot....	675	8 Inch 70 Foot....	2200
7 Inch 20 Foot....	250	7 Inch 30 Foot....	400	8 Inch 40 Foot....	800	8 Inch 75 Foot....	2600
8 Inch 20 Foot....	325	8 Inch 30 Foot....	550	8 Inch 45 Foot....	1000	8 Inch 80 Foot....	3000
5 Inch 25 Foot....	200	6 inch 35 Foot....	450	8 Inch 50 Foot....	1200	8 Inch 85 Foot....	3500
6 Inch 25 Foot....	250			8 Inch 55 Foot....	1400	8 Inch 90 Foot....	4000

Minimum Weights Required to Make Carload Lots of Poles

Cars Loaded with 35 Foot or Shorter Poles (Double or Overhang Loads) ..... 40,000 Lbs.
Cars Loaded with 40 Foot Poles or 40 Foot and Shorter Poles (Double or Overhang Loads) ..... 50,000 Lbs.
Loads Containing Any 45 Foot or Longer Poles (Double or Overhang Loads) ..... 66,000 Lbs.
Triple Loads ..... 99,000 Lbs.

CEDAR POLES

TABLE NO. 1
MINIMUM TOP MEASUREMENT

Top Designation	Circumference Inches	Top Designation	Circumference Inches
4 Inch Top	12	8 Inch Top	25
5 Inch Top	15	9 Inch Top	28
6 Inch Top	18½	10 Inch Top	31
7 Inch Top	22		

TABLE NO. 2

Poles 35 feet and longer shall have a minimum circumference measurement at extreme butt as follows:

Length, Feet	7 Inch Top	8 Inch Top	9 Inch Top	10 Inch Top	Length, Feet	8 Inch Top	9 Inch Top	10 Inch Top
35	33 Inches	36 Inches	39 Inches	42 Inches	65	45 Inches	48 Inches	51 Inches
40	34 Inches	37 Inches	40 Inches	44 Inches	70	47 Inches	50 Inches	53 Inches
45		39 Inches	42 Inches	45 Inches	75	48 Inches	51 Inches	54 Inches
50		41 Inches	44 Inches	47 Inches	80	50 Inches	53 Inches	56 Inches
55		42 Inches	45 Inches	48 Inches	85	51 Inches	54 Inches	57 Inches
60		44 Inches	47 Inches	50 Inches	90	52 Inches	55 Inches	58 Inches

SPECIFICATIONS FOR BUTT-TREATING CEDAR POLES IN OPEN TANKS
TREATMENT "PENTREX"

Provides for a Bath in Creosote and a Guarantee of Either ⅜ Inch or ½ Inch Penetration

General—Every pole under these Specifications shall bear the Trade Mark "PENTREX" on a metal disc, which disc shall also show the year treated.

Preservative

The preservative is to be that known as "Creosote," which must conform to the analysis requirements of these Specifications. The temperature of the preservative shall not exceed 230° F. during the period of treatment.

Preservation

The treated section of a pole shall include its entire surface below a plane whose distance from its butt shall not be less than that shown for the length of the pole as shown under Table No. 2.

Pentrex Treatment

A. The portion of the pole's surface within a distance of one foot above and two feet below the ground line shall be punctured by Pentrex Method to facilitate the entrance of the preservative.

B. The incision shall not exceed one-half (½) inch in depth or one-eighth (⅛) inch in width. The distance between the edges of adjacent incisions measured along the surface shall not be less than three-eighths (⅜) inch in a plane perpendicular to the axis of the pole, and not less than five-eighths (⅝) inch in any other plane.

C. The depth of penetration in the punctured section of any pole shall not be less than three-eighths (⅜) inch when the thickness of the sapwood is three-eighths (⅜) inch or more. When the thickness of the sapwood is less than three-eighths (⅜) inch the depth of penetration shall not be less than the thickness of the sapwood.

TREATMENT "B"

Provides for a Continuous Submersion in Alternately Hot and Cold Creosote for a Minimum Duration of Six Hours

Condition and Preparation of Poles for Butt Treatment—Poles shall be seasoned at least four seasoning months before treatment.

Method of Duration of Treatment—The poles shall be placed in upright tanks with the butts fully and continuously submerged in the preservative, to the height as shown in table No. 2. The duration of treatment shall be divided between a hot and cold bath. The poles shall remain in the hot bath for a minimum of four continuous hours, after which they shall be subjected to the cold bath in which they shall remain for a minimum of two hours.

Preservative—The preservative is to be that known as "Creosote" which must conform to the analysis requirements of these specifications.

TREATMENT "AA"

Provides for a Continuous Submersion in Hot Creosote for a Minimum Duration of Fifteen Minutes

Condition and Preparation of Poles for Butt Treatment—Poles shall be seasoned at least four seasoning months before treatment.

Method and Duration of Treatment—The poles shall then be placed in an upright tank with the butts fully and continuously submerged in the preservative for not less than 15 minutes when the atmospheric temperautre is 70° F.

Preservative—The preservative is to be known as "Creosote" which must conform to the analysis requirements of these specifications.

TREATMENT "A"

Provides for a Continuous Submersion in Hot Carbolineum for a Minimum Duration of Fifteen Minutes

Specifications for this treatment same as Treatment "AA," except that the preservative used will be that known as "Carbolineum," which must conform to the analysis requirements of these specifications.

TABLE NO. 2
Ground Line and Minimum Length of Treated Section

Length of Pole Feet	Distance of Ground Line Above Butt, Feet	Minimum Length of Treated Section, Measured From Butt of Pole, Feet	Length of Pole Feet	Distance of Ground Line Above Butt, Feet	Minimum Length of Treated Section, Measured From Butt of Pole, Feet
20 or Less	4	5½	50	7	8
25	5	6	55	7½	8½
30	5½	6½	60	8	9
35	6	7	65	8½	9½
40	6	7	70	9	10
45	6½	7½	....	......	....

CROSS-ARMS

Fir is by far the most popular wood used for making cross arms and is selected on account of its great strength, durability and light weight. The yellow fir used in the manufacture of fir cross arms should not be confused with the red fir.

The wood is cut from the large trees, at times up to seven feet in diameter, found in the virgin forests of the North Pacific Coast. This wood is yellow in color and is noted for its straight close grain. Because of its straight grain, arms made from yellow fir maintain their shape throughout their entire life in service.

In ordering cross arms specify what is wanted, and if other than standard boring send sketch or blue print with order. Arms specially made cannot be returned. Any change required from standard spacing, pin or bolt holes as given must be distinctly specified.

Electric Light Arms, 3¼x4¼ Inches

Mfrs. No.	Lgth. In.	No of Pins	Pin Hole Spac., In. Center	Sides	Ends	Lgth. Brace, In.	Wt Lb. Per 100 Arms
5800	36	2	28	....	4	25	10.2
5801	48	4	16	12	4	28	13.6
5802	60	4	18	17	4	28	17
5803	72	4	22	21	4	32	20.4
5804	72	6	16	12	4	32	20.4
5805	96	6	18	17½	4	32	27.2
5806	96	8	16	12	4	32	27.2
5807	102	10	16	9¾	4	32	28.9
5808	120	8	17½	15¾	4	42	34
5809	120	10	16	12	4	42	34
5810	120	12	16	9⅝	3⅞	42	34

Center bolt hole, $\frac{11}{16}$ inch.

Railroad Arms, 3x4¼ Inches

5812	72	4	20	22	4	....	19.2
5814	96	8	19	17¼	4	....	25.6
5816	120	8	19	15½	4	....	32
5817	120	10	16	12⅜	2½	....	32

Center bolt hole, $\frac{11}{16}$ inch.

Telephone Arms, 2¾x3¾ Inches

5819	24	2	17	....	3½	....	5
5820	30	2	23	....	3½	....	6.25
5821	36	2	29	....	3½	25	7.5
5822	42	4	16	9½	3½	28	8.75
5823	62	6	16	9¾	3½	28	13
5824	82	8	16	9¾	3¾	28	17
5825	102	10	16	9¾	4	28	21.25
5826	120	12	16	9⅝	3⅞	28	25

Center bolt hole, $\frac{11}{16}$ inch.

N. E. L. A. Arms, 3½x4½ Inches

5828	38	2	30	....	4	28	12⅔
5829	67	4	30	14½	4	38	22⅓
5830	96	6	30	14½	4	38	32
5831	110	8	30	12	4	38	36⅔

Center bolt hole, $\frac{11}{16}$ inch.

All arms bored for one ⅝ inch center bolt and two ⅜ inch brace bolt holes unless otherwise specified.

Pin holes will be bored, unless otherwise specified, as follows:

Electric Light Arm.................................... $1\frac{17}{32}$ Inch
Railroad Arms.................................... $\frac{9}{16}$ Inch
Telephone Arms.................................... $1\frac{9}{32}$ Inch
N. E. L. A. Arms.................................... $1\frac{17}{32}$ Inch

WOOD PINS AND BRACKETS

STANDARD INSULATOR PINS

Size Inches	Std. Pkg.	Painted Oak Wt.Lbs. Per 1000	Painted Oak Price Per 1000	Standard Grade Locust Wt.Lbs. Per 1000	Standard Grade Locust Price Per 1000	Bell Grade Locust Wt.Lbs. Per 1000	Bell Grade Locust Price Per 1000
1¼x 8	250	300	**$21.00**	325	**$38.00**	325	**$42.00**
1½x 9	250	400	**27.00**	450	**56.00**	450	**60.00**
*1½x12	100	550	**60.00**	600	**110.00**	......	....
†1½x12	100	600	**70.00**	650	**120.00**	......	....

*1-inch top. †1⅜-inch top.

TRANSPOSITION INSULATOR PINS

For use in connection with transposition glass insulators. Made with extra long thread.

Painted Oak Size Inches	Std. Pkg.	Wt.Lbs. Per 1000	Price Per 1000	Locust Size Inches	Std. Pkg.	Wt.Lbs. Per 1000	Price Per 1000
1¼x 9	250	350	**$24.00**	1¼x 9	250	400	**$48.00**
1½x10	250	450	**34.00**	1½x10	250	500	**70.00**

CORNER INSULATOR PINS

Furnished complete with plain bolts and washers.

Painted Oak Size Inches	Std. Pkg.	Wt.Lbs. Per 1000	Price Per 1000	Locust Size Inches	Std. Pkg.	Wt.Lbs. Per 1000	Price Per 1000
1¼x8	250	600	**$120.00**	1¼x8	250	625	**$140.00**
1½x9	250	725	**140.00**	1½x9	250	775	**150.00**

DUPLEX INSULATOR PINS

For use in connection with duplex pony and duplex deep groove insulators.

Painted Oak Size Inches	Std Pkg.	Wt.Lb. Per 1000	Price Per 1000	Locust Size Inches	Std. Pkg.	Wt Lb Per 1000	Price Per1000
1¼x11½	250	450	**$42.00**	1¼x11½	250	500	**$80.00**
1½x12	250	600	**60.00**	1½x12	250	650	**120.00**

STANDARD POLE OR SIDE BRACKETS

These brackets are fastened to pole or wall by spikes. Holes in brackets are $\frac{5}{16}$-inch diameter. Brackets are securely wired in bundles of 25 each.

Painted Oak

Mfrs. No.	Size Inches	Std. Pkg.	Wt. Lbs. Per 1000	Price Per 1000
4	1½x2 x10	250	500	**$33.00**
1	1½x2 x12	250	700	**37.00**
3	1½x2¼x12	250	800	**40.00**
L.D.	1⅝x2 x12	250	800	**44.00**
2	2 x2¼x12	250	1000	**56.00**
	Unpainted Oak			
W.U.	2 x2⅜x12	250	1100	**56.00**

WOOD POLE STEPS
Painted Oak

Size Inches	Wt. Lbs. Per 1000	Price Per 1000
1½x2x7	500	**$14.00**

HUBBARD GROUND RODS AND GROUND PIPE

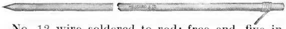
Hot Galvanized

WITHOUT COPPER WIRE

Made of stiff, high carbon open hearth steel, with long sharp points. Unwired rods are provided with holes through the upper ends for attaching grounding wires. These holes are located one inch from ends of rods.

Mfrs. No.	Dia. In.	Lth. Ft.	Wt Lb. Per 100	Price Per 100	Mfrs. No.	Dia. In.	Lth. Ft.	Wt Lb Per 100	Price Per 100
9555	⅜	5	152	**$28.80**	**9576**	⅝	6	....	**$72.00**
9556	⅜	6	196	**34.40**	**9577**	⅝	7	....	**84.00**
9565	½	5	300	**42.90**	**9578**	⅝	8	....	**96.00**
9566	½	6	360	**51.36**	**9598**	1	8	2167	**216.70**
9567	½	7	420	**59.80**	....	......	..	....	....

WITH COPPER WIRE



No. 12 wire soldered to rod; free end, five inches long.

Mfrs. No.	Dia. In.	Lth. Ft.	Wt. Lb. Per 100	Price Per 100	Mfrs. No.	Dia. In.	Lth. Ft.	Wt.Lb. Per 100	Price Per 100
9505	½	5	320	**$62.90**	**9516**	⅝	6	595	**$94.00**
9506	½	6	395	**71.36**	**9538**	1	8	2133	**275.00**

HUBBARD GROUND PIPES

Sectional view shows space for solder and wire strand. Steel pipe, forged to a long sharp point.

Mfrs. No.	Nom. Size Pipe, In.	Actual Size Diam., In.	Lgth. Ft.	Shpg Wt. Lb. Per 100	Price Per 100
9500	¾	1.050	8	880	**$170.00**
9502	2½	2.875	6	3475	**660.00**

BURGER DRIVE CAPS—Hot Galvanized

Standard unthreaded, pipe or conduit can be quickly and easily converted into an excellent ground, by use of these drive caps. Made of malleable iron.

Mfrs. No	Nominal Size Pipe, In.	Wt.Lb. Per 100	Price Per 100
9540	¾	90	**$84.02**
9541	1	196	**84.00**
9542	1¼	302	**114.00**

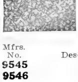
PEIRCE DRIVE POINTS

Hot Galvanized

Used with Burger drive caps, for driving standard, unthreaded, pipe or conduit. Made of malleable iron.

Mfrs. No.	Nominal Size Pipe, In.	Wt.Lb Per 100	Price Per 100
9550	¾	38	**$44.64**
9551	1	83	**45.00**
9552	1¼	128	**48.00**

GROUND PLATES

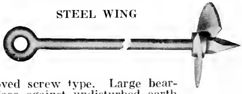


Can be attached to the butt of pole before erection, or dropped in the hole before earth is filled in. It is made of galvanized 20-gauge sheet steel, 12 inches square, and in two types.

Mfrs. No.	Description	Length In.	Wt.Lb Per 100	Price Per 100
9545	Without		165	**$51.84**
9546	With		170	**64.16**

HUBBARD GUY ANCHORS

STEEL WING



Improved screw type. Large bearing surfaec against undisturbed earth prevents creeping. Drop forged from special high carbon steel and completely hot galvanized.

Mfrs. No.	Diam. of Wing, In.	Size Rod In.	Wt.Lbs. Per 100	Price Per 100
7526	6	¾ x66	1040	**$404.40**
7528	8	1 x66	1860	**735.28**
7530	10	1¼ x66	2900	**1139.68**

HUBBARD ROCK GUY ANCHORS

Hot Galvanized

Mfrs. No.	Description	Wt.Lb. Per 100	Price Per 100
7545	Anchor	400	**$122.00**

ROCK GUY BOLTS

Mfrs. No.	Description	Wt.Lb. Per 100	Price Per 100
7546	Bolt	600	**$100.00**
7547	Bolt with Wedge	600	**110.00**

HUBBARD GUY WIRE CLAMPS

STANDARD TYPE

Are cut from open hearth steel strips 1 9/16 inches wide and ⅜ inch thick; hot galvanized finish. Furnished with half inch high carbon steel track bolts having an elliptical cross section under the head which fits a similar opening in plate.

Mfrs. No		Copper Terminal	Wt.Lb. Per 100	Price Per 100
7448	2 Bolt	3	115	**$24.68**
7449	3 Bolt	4	185	**33.78**
7450	3 Bolt	6	210	**39.56**

HEAVY TYPE

Made of plates 2 inches wide by ⅜ inch thick and equipped with ⅝ inch special heat treated steel track bolts.

Mfrs. No.	Type	Length, In.	Wt. Lbs. Per 100	Price Per 100
7461	3-Bolt	6	263	**$47.48**
7462	2-Bolt	4	174	**70.90**

HUBBARD GUY THIMBLES

Hot Galvanized

Mfrs.	Size Strand	Size Guy Rod	Wt.Lb.	Price
7593	⅜	½ and ⅝	9½	**$7.38**
7594	½	⅝ and ¾	22	**9.50**

HUBBARD WIRE ROPE CLIPS

Drop forged; made from open hearth steel. Hot galvanized U-bolts and nuts.

Mfrs. No.	Size of Strand, In.	Wt.Lb. Per 100	Price Per 100
7480	¼	25	$31.50
7481	5/16	25	31.50
7482	⅜	37	36.00
7483	7/16	37	40.50
7484	½	75	40.50
7485	⅝	87	49.50
7486	¾	175	58.50
7487	⅞	200	67.50
7488	1	300	76.50

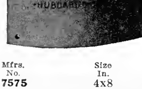
HUBBARD GUY SHIMS

Furnished either hot galvanized or plain.

Mfrs. No.	Size, In.	Wt. Lbs. Per 100	Price Per 100
7570	1 x 3/16 x8	40	$6.22
7571	1¼x 3/16 x8	48	7.20

HUBBARD STRAIN PLATES

STANDARD—Hot Galvanized



Designed to prevent guy strand from cutting into pole. From two to four plates are required per pole.

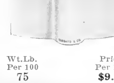
Made from 14 gage galvanized steel.

Mfrs. No.	Size In.	Wt. Lbs. Per 100	Price Per 100
7575	4x8	75	$13.82

MOULDING STRAIN PLATES

Hot Galvanized

Used to prevent strand from cutting or crushing ground wire moulding. Will fit over N. E. L. A. standard 1 inch ground wire moulding. 14 gage galvanized steel.

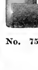


Mfrs. No.	Size In.	Wt.Lb. Per 100	Price Per 100
7576	4x8	75	$9.20

HUBBARD GUY HOOKS

No. 7583½

No. 7586


No. 7584

Made of half oval steel, bent with the flat side to the pole so as not to injure the guy strand. Nos. 7584 and 7586 are standard for general use. No. 7583½ used for light work.

Mfrs. No.	Size Steel In.	Length In.	Diam. In.	Wt. Lbs. Per 100	Price Per 100
7583½	1¼x¼	3½	9/16	38	$9.50
7584	1¾x⅜	4	11/16	87	14.50
7585	1½x⅜	3½	11/16	59	7.00
7586	1½x⅜	6	9/16	88	14.28

HUBBARD DROP-FORGED EYE NUTS

Hot Galvanized

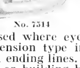
No. 7501

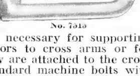
Designed for use on the threaded ends of ½ or ⅝ inch machine bolts passed vertically through cross arms for attaching suspension type insulators. By their use a second eye may be added to the ½ or ⅝ inch eye bolts, which permits the attachment of a back guy to the same bolt that supports the insulators to dead ended wire.

Mfrs. No	Diam. Bolt, In.	Eye Dimens., In. Width	Eye Dimens., In. Length	Wt.Lb. Per 100	Price Per 100
7500	½	1⅛	1⅛	49	$48.06
7501	⅝	1⅛	1⅛	46	49.50
7502	⅝	1½	1¾	60	73.50
7503	¾	1½	1¾	56	73.50

HUBBARD DROP-FORGED BOLT CLEVISES

Hot Galvanized

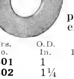

No. 7514


No. 7515

Used where eyes are necessary for supporting suspension type insulators to cross arms or for dead ending lines. They are attached to the cross arm or building by standard machine bolts with either the head or nut inside the eye.

Mfrs. No	Length In.	Width In.	Diam. Bolt, In.	Wt.Lb. Per 100	Price Per 100
7514	1¾	1⅛	⅝	83	$56.96
7515	3¼	1¼	⅝	103	56.96
7516	3¼	1¼	¾	100	56.96

HUBBARD WASHERS



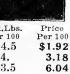
ROUND

Wrought steel, hot galvanized or plain. Cleanly cut and evenly covered to insure a close fit.

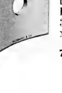
Mfrs. No.	O.D. In.	Size of Hole In.	Size Bolt Inches Mach.	Size Bolt Inches Carriage	Wt. Lbs. Per 100	Price Per 100
7801	1	7/16	⅜	....	1.6	$0.46
7802	1¼	½	....	⅜	3.	.64
7803	1⅜	9/16	½	⅜	4.2	.86
7805	1¾	11/16	⅝	½	7.5	1.36
7806	2	13/16	¾	⅝	11.2	1.90

SQUARE

Wrought steel, hot galvanized. Cleanly cut and evenly covered to insure a perfect fit.



Mfrs. No.	Size Inches	Hole Inch	For Bolts Inch	Wt.Lbs. Per 100	Price Per 100
7812	2 x2 x⅛	11/16	⅝	14.5	$1.92
7814	2¼x2¼x 3/16	15/16	¾	24.	3.18
7816	3 x3 x 3/16	15/16	¾	43.5	6.04
7817	3 x3 x¼	13/16	⅝	58.5	7.74
7818	4 x4 x 3/16	13/16	⅝	83.	10.76
7819	4 x4 x¼	13/16	¾	117	10.76
7820	4 x4 x½	1⅛	1	215	32.00



STUBBING WASHERS

The stubbing washer is used for attaching a pole, rotted off at the ground line, to a new stub. Dimensions, 3¼x3¼x¼ inches.

Mfrs. No.	Size of Hole, In.	For Bolt Size, In.	Wt.Lb Per 100	Price Per 100
7825	¾	⅝	712	$11.57

HUBBARD MACHINE BOLTS

Hot Galvanized

⅜ Inch Bolts

Mfrs. No.	Lgth. In.	Wt.Lb. Per 100	Price Per 100	Mfrs. No.	Lgth. In.	Wt.Lb. Per 100	Price Per 100
9601	1	7.3	$2.40	9603½	3½	14.6	$3.64
9601¼	1¼	8.3	2.40	*9604	4	16.	3.84
9601½	1½	9.3	2.40	*9604½	4½	17.5	4.04
9602	2	10.3	2.60	*9605	5	18.9	4.24
9602½	2½	11.7	2.80	9605½	5½	20.4	4.44
9603	3	13.1	3.44	9606	6	21.8	4.64
½ Inch Bolts							
9701	1	16.	3.50	*9705	5	36.3	6.22
9701¼	1¼	17.3	3.70	*9706	6	41.4	6.82
9701½	1½	18.5	3.70	*9707	7	46.5	7.42
9702	2	21.	4.00	9708	8	51.6	8.02
9702½	2½	23.6	4.30	9710	10	61.8	9.22
9703	3	26.1	4.60	9712	12	72.	10.42
9703½	3½	28.7	4.90	9714	14	82.2	11.62
9704	4	31.2	5.20	9716	16	92.4	12.82
9704½	4½	33.8	5.50	9718	18	102.6	14.02
9704¾	4¾	35.	6.22	9720	20	112.8	15.22
⅝ Inch Bolts							
9801½	1½	32.	5.50	*9810	10	98.	13.40
9802	2	36.	5.90	*9812	12	114.	15.16
9802½	2½	40.	6.30	*9814	14	130.	16.92
9803	3	44.	6.70	*9816	16	146.	18.68
9803½	3½	48.	7.10	*9818	18	150.	20.44
9804	4	52.	7.50	*9820	20	164.	22.20
9805	5	59.	8.30	*9822	22	178.	23.96
9806	6	66.	9.10	*9824	24	192.	25.72
9807	7	74.	9.90	9826	26	206.	27.48
*9808	8	82.	11.64	9828	28	220.	29.24
¾ Inch Bolts							
9901½	1½	49.	7.70	9910	10	134.	19.60
9902	2	55.	8.25	9912	12	156.	22.16
9902½	2½	60.	8.80	9914	14	178.	24.72
9903	3	66.	9.35	9916	16	200.	27.28
9903¼	3½	71.	9.90	9918	18	222.	29.84
9904	4	77.	10.45	9920	20	244.	32.40
9905	5	88.	11.55	9922	22	266.	34.96
9906	6	99.	12.65	9924	24	288.	37.52
9907	7	106.	13.75	9926	26	300.	35.25
9908	8	112.	17.04	9928	28	322.	37.65

*N. E. L. A. Standard.

HUBBARD CARRIAGE BOLTS

Hot Galvanized

⅜ Inch Bolts				½ Inch Bolts			
Mfrs. No.	Lgth. In.	Wt.Lb. Per 100	Price Per 100	Mfrs. No.	Lgth. In.	Wt.Lb. Per 100	Price Per 100
9633	3	12.9	$2.68	9643	3	24.7	$4.40
9633½	3½	14.3	2.88	9643½	3½	27.3	4.70
*9634	4	15.8	3.08	9644	4	29.8	5.00
*9634½	4½	17.2	3.28	9644½	4½	32.4	5.30
*9535	5	18.7	3.48	9645	5	34.9	5.60
9635½	5½	20.1	3.68	9645½	5½	37.5	5.90
9636	6	21.6	3.88	9646	6	40.	6.20

*N. E. L. A. Standard.

HUBBARD HANGER SCREWS

Hot Galvanized

Mfrs. No.	Diam. Inches	Lgth. Inches	Wt.Lb. Per 100	Price Per 100
8834	⅝	4	26	$10.94
8834½	⅝	4½	30	11.82
8835	⅝	5	34	12.98

HUBBARD LAG SCREWS

Hot Galvanized

Mfrs. No.	Lgth. In.	Wt.Lb. Per 100	Price Per 100	Mfrs. No.	Lgth. In.	Wt.Lb. Per 100	Price Per 100
¼ Inch Lag Screws							
9722	2	2.8	$2.45	9722½	2½	3.3	$3.00
$\frac{5}{16}$ Inch Lag Screws							
9732	2	4.7	2.45	9733	3	6.5	2.85
9732½	2½	5.6	2.65	9733½	3½	7.4	3.05
½ Inch Lag Screws							
9752½	2½	16.7	4.55	9755	5	28.2	6.55
9753	3	19.	4.95	9755½	5½	30.5	6.95
9753½	3½	21.3	5.35	9756	6	32.8	7.35
*9754	4	23.6	5.75	9756½	6½	35.1	8.75
9754½	4½	25.9	6.15	9757	7	37.4	9.15
⅝ Inch Lag Screws							
9764	4	35.1	8.00	9765½	5½	46.5	9.50
9764½	4½	38.9	8.50	9766	6	50.3	10.00
*9765	5	42.7	9.00	....	....	......	....

*N. E. L. A. Standard.

HUBBARD DOUBLE ARMING BOLTS

Hot Galvanized

Mfrs. No.	Lgth. In.	Wt.Lb. Per 100	Price Per 100	Mfrs. No.	Lgth. In.	Wt.Lb. Per 100	Price Per 100
½ Inch							
9842	12	76	$16.36	9850	20	110	$21.16
9844	14	85	17.56	9852	22	120	22.36
9846	16	93	18.76	9854	24	128	23.56
9848	18	102	19.96	....	....	......	....
⅝ Inch							
9862	12	128	24.50	*9870	20	198	32.50
*9864	14	143	26.50	*9872	22	218	34.50
*9866	16	158	28.50	*9874	24	238	36.50
*9868	18	178	30.50	....	....	......	....
¾ Inch							
9882	12	188	36.40	9890	20	284	47.60
9884	14	212	39.20	9892	22	308	50.40
9886	16	236	42.00	9894	24	332	53.20
9888	18	260	44.80	....	....	......	....

*N. E. L. A. Standard.

HUBBARD DROP FORGED EYE BOLTS

Hot Galvanized

Mfrs. No.	†Lgth. In.	Wt.Lb. Per 100	Price Per 100	Mfrs. No.	†Lgth. In.	Wt.Lb. Per 100	Price Per 100
½ Inch — Size of Eye, Inside ¾x1 Inch							
*9936	6	55	$21.98	*9944	14	95	$28.06
*9938	8	65	23.50	*9946	16	105	29.58
*9940	10	75	25.02	*9948	18	110	31.10
*9942	12	85	26.54	*9950	20	120	32.62
⅝ Inch — Size of Eye, Inside 1½x2 Inches							
*9956	6	84	25.66	*9964	14	148	34.46
*9958	8	100	27.86	*9966	16	164	36.66
*9960	10	116	30.06	*9968	18	180	38.86
*9962	12	132	32.26	*9970	20	196	41.06
¾ Inch — Size of Eye, Inside 1½x2 Inches							
9976	6	116	37.16	9984	14	212	49.96
9978	8	140	40.36	9986	16	236	53.16
9980	10	164	43.56	9988	18	260	56.36
9982	12	188	46.76	9990	20	284	59.56
⅝ Inch Double Arming Eye Bolts							
9786	16	188	34.00	9790	20	220	38.00
9788	18	204	36.00	....	....	......	....

*N. E. L. A. Standard. †Length to center of eye.

HUBBARD POLE STEPS

FOR WOOD POLES

Hot Galvanized

HOOK HEAD

Standard Hook Head

Mfrs. No.	Diam. In.	Length In.	Wt.Lbs. Per 100	Price Per 100
7123	$\frac{9}{16}$	9	70	$8.36
7124	5/8	9	87	10.40
7125	5/8	10	95	11.42
Long Hook Head				
7126	5/8	10	115	13.60

BUTTON HEAD

Mfrs. No.	Diam. In.	Length In.	Wt.Lbs. Per 100	Price Per 100
7128	5/8	9	83	$10.80
7129	5/8	10	91	12.00

FOR CONCRETE POLES

HOOK HEAD

Mfrs. No.	Diam. In.	Length In.	Wt.Lbs. Per 1000	Price Per 100
7131	5/8	14	160	$51.50
7132	5/8	16	170	53.50
7133	5/8	20	190	57.75

BUTTON HEAD

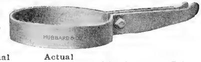
Mfrs. No.	Diam. In.	Length In.	Wt.Lbs. Per 1000	Price Per 100
7136	5/8	14	170	$51.50
7137	5/8	16	180	53.50
7138	5/8	20	200	57.75

FOR STEEL POLES AND TOWERS

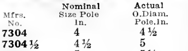
Mfrs. No.	Diam. In.	Length In.	Wt.Lbs. Per 1000	Price Per 100
7140	5/8	6	84	$25.50

TUBULAR POLE STEPS

SOLID STEPS



Mfrs. No.	Nominal Size Pole In.	Actual O.Diam. Pole, In.	Wt.Lbs. Per 100	Price Per 100
7204	4	4½	195	$57.00
7204½	4½	5	210	61.00
7205	5	5½	225	65.00
7206	6	6⅝	240	70.00
7207	7	7⅝	275	77.00
7208	8	8⅝	300	84.50
7209	9	9⅝	325	92.00
7210	10	10¾	355	100.00



SPLIT STEPS

Mfrs. No.	Nominal Size Pole In.	Actual O.Diam. Pole, In.	Wt.Lbs. Per 100	Price Per 100
7304	4	4½	220	$70.00
7304½	4½	5	235	74.00
7305	5	5½	250	78.00
7306	6	6⅝	275	82.50
7307	7	7⅝	300	90.00
7308	8	8⅝	325	97.50
7309	9	9⅝	350	105.00
7310	10	10¾	380	113.00

HUBBARD POLE DATING NAILS

Hot Galvanized

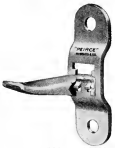
Pole dating nails are used for indicating the year in which the pole was set.

Mfrs. No	Number	Wt.Lb. Per 100	Price Per 100
1924	24	4.4	$1.50
1925	25	4.4	1.50

PEIRCE DETACHABLE POLE STEP

Hot Galvanized

Nos. 7235 and 7236



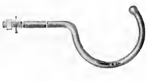
Nos. 7231 and 7232

Two styles detachable pole steps are made. The lag screw type and back type. In the former the step slides down in a groove on each side of the head of the lag. Back type is attached by two ½ inch lag screws.

Mfrs. No.	Description	Exten. From Pole In.	Wt.Lb. Per 100	Price Per 100
7231	Step	4¾	41	$19.00
7232	Back	......	44	6.00
7235	Lag and Plate	......	34	14.00
7236	Step	5⅛	54	36.00

HUBBARD LAMP TRIMMERS LEG REST

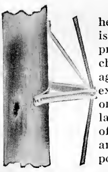
Hot Galvanized



When street lamps are trimmed from the pole, the leg rest provides a dependable support for the lamp trimmer and permits freedom of both hands. Made of ¾ inch steel. Furnished with square nut and round washer.

Mfrs. No.	Diameter Holes In.	Length Over All In.	Wt.Lb. Per 100	Price Per 100
7139	¾	23½	352	$75.00

PEIRCE POLE STRUTS



Especially designed for overhead line construction where it is impossible to secure guying privileges. Made of heavy steel channels, with a broad bearing against the pole, from which it extends 11 inches, and requires only the driving of three ½ inch lags to attach it rigidly to a pole of any diameter. Two struts are required for each self-supporting pole. Hot galvanized.

Mfrs No.	Wt. Lbs. Each	Price Each
1500	8½	$4.36

HUBBARD EXTENSION FIXTURES

Hot Galvanized

No. 8050

No. 8052

No. 8054

Designed for supporting either 6 or 10 pin arms, where it is necessary to clear buildings or trees, without the use of high poles. No. 8051 being used with 6 pin and No. 8052 with 10 pin arms. Vertical brace is designed for 3 arm spaced 12 inches apart, or 2 arm on 24 inch centers, additional arms being cared for by placing other vertical braces in series with the first. All braces ma 'e of heavy open hearth steel angles, diagonal braces being 2 x 2 x 3/16 inch, back braces 2 x 2 x ¼ inch and the vertical braces 1¾ x 1¾ x ¼ inch. Bolts not included.

Mfrs. No.	Type Brace	Length In.	Wt.Lbs. Per 100	Price Per 100
8050	Diagonal, with Step	83	1750	**$209.40**
8051	Back	54½	1350	**167.94**
8052	Back	66 7/16	1665	**224.18**
8054	Vertical	30⅝	745	**96.40**

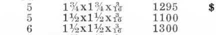
HUBBARD CROSS ARM BRACES

FLAT

Braces, unless otherwise ordered, are punched one end for 9/16 inch hole and other end for 7/16 inch hole, holes punched 1 inch from end of brace to center of hole. A. T. & T. Co., N. E. L. A. and W. U. T. Co. standard.

Mfrs. No.	Size Inches	Wt.Lbs. Per 100	Price Per 100
8020	20x1 7/32x 7/32	142	**$13.08**
8022	22x1 7/32x 7/32	156	**14.38**
8024	24x1 7/32x 7/32	170	**15.66**
8026	26x1 7/32x 7/32	184	**16.96**
8028	28x1 7/32x 7/32	198	**18.26**
8030	30x1 7/32x 7/32	212	**19.54**
8032	32x1 7/32x 7/32	226	**20.84**
8120	20x1¼x¼	167	**15.40**
8122	22x1¼x¼	183	**16.92**
8124	24x1¼x¼	200	**16.44**
8126	26x1¼x¼	216	**20.00**
8128	28x1¼x¼	233	**21.56**
8130	30x1¼x¼	250	**23.12**
8132	32x1¼x¼	266	**24.68**

FORGED ENDS—WITH STEPS

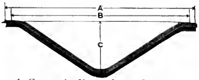


Mfrs. No	Length Ft.	Size In.	Wt.Lbs. Per 100	Price Per 100
7979	5	1¾x1¾x 3/16	1295	**$144.66**
7981	5	1½x1½x 3/16	1100	**180.94**
7982	6	1½x1½x 3/16	1300	**199.86**
7983	7	1½x1½x 3/16	1500	**222.24**
7984	7	1¾x1¾x 3/16	1760	**250.26**
7985	10	2 x2 x¼	3800	**498.52**

HUBBARD ANGLE CROSS ARM BRACES

Hot Galvanized

ANGLE IRON



Braces of any desired dimensions can be furnished.

When ordering special sizes give dimensions A, B and C, as indicated, and state size of angle and size of soles desired. Standard holes 9/16 and 11/16 inch.

7950	1½x1½x 3/16	40	37	12	700	**$95.80**
7952	1½x1½x 3/16	51	48	14¾	860	**111.46**
7953	1¾x1¾x 3/16	63	60	18	1250	**156.48**
7954	1¾x1¾x 3/16	69	66	20	1360	**164.54**
7955	1¾x1¾x 3/16	75	72	18	1460	**175.50**
7956	2 x2 x 3/16	75	72	22	1640	**206.20**

N. E. L. A. Standards

7940	1½x1½x 3/16	45	42	12	700	**100.22**
7941	1½x1½x 3/16	51	48	18	860	**134.00**
7942	1½x1½x 3/16	63	60	18	1060	**156.48**
7943	1¾x1¾x 3/16	75	72	22	1260	**180.58**

HUBBARD CROSS ARM BACK BRACES

Hot Galvanized

Used for back bracing cross arms, at corners and terminal poles. Made in two shapes, angle and channel, of open hearth steel. Fastens to the cross arm by ½ inch carriage bolts, and to the pole by ⅝ inch through bolt.

ANGLE STEEL

Type A

No. 7966

Mfrs. No.	Size Steel, In.	Length In.	Wt. Lbs. Per 100	Price Per 100
7964	1½x1½x 3/16	48	500	**$88.00**
7965	1½x1½x 3/16	60	750	**117.88**
7966	1½x1½x 3/16	72	1000	**140.06**

Type B

Attached to arm by two ½ inch machine bolts in each end and to pole by ⅝ inch through bolt.

No. 7969

Mfrs. No.	Size Steel, In.	Length In.	Wt. Lbs. Per 100	Price Per 100
7967	1¾x1¾x 3/16	94	1300	**$209.20**
7969	1¾x1¾x 3/16	109	1740	**229.62**

HUBBARD VERTICAL BRACES

18 Inch Spacing

Mfrs. No.	No. of Arms	Length Over All, In.	Size Angle In.	Wt.Lbs. Per 100	Price Per 100
7976	2	20	1½x1½x 3/16	800	**$21.10**
7977	3	38	1½x1½x 3/16	570	**40.28**
7978	4	56	1½x1½x 3/16	840	**59.36**
		24 Inch Spacing			
7986	2	26	1½x1½x 3/16	390	**27.56**
7987	3	50	1½x1½x 3/16	750	**53.00**
7988	4	74	1½x1½x 3/16	1110	**78.44**

HUBBARD CABLE SUSPENSION CLAMPS

Hot Galvanized

These are the standard A. T. & T. Company's Cable suspension clamps, the one-bolt type being used for light cables and on cable arms, and the three-bolt clamp for heavy cables and long spans. The one-bolt clamp is furnished without a bolt, as the ⅝ inch through bolt is used both for attaching the clamp to the pole and tightening the clamp on the stand. The three-bolt clamp is furnished with two ½ inch high carbon steel track bolts.

Mfrs. No.	Size In.	Size Strand In.	Wt. Lbs. Per 100	Price Per 100
8901	2½	¼ to $\frac{7}{16}$	74	**$15.20**
8903	5¾	¼ to $\frac{7}{16}$	220	**39.34**

HUBBARD CROSSOVER CLAMPS

Drop Forged

A. T. & T. Co. Standard

Used for joining two cable messengers when they cross each other at right angles. Hot galvanized.

Mfrs. No.	Size of Sides In	Wt. Lbs. Per 100	Price Per 100
8930	1½x3¼x½	160	**$67.00**

HUBBARD REINFORCING LINK

Hot Galvanized

These links are used on each side of cable suspension clamp to relieve side strains at corners in the line. They are bolted to the pole by ½ inch lag screws through the double eye after links have been drawn tight against messenger.

Mfrs. No.	Length In.	Size Steel In.	Wt. Lbs. Per 100	Price Per 100
8929	8⅜	½	116	**$15.00**

HUBBARD CONDUIT STRAPS

Used for attaching standard 2 or 3 inch vertical conduit to wood poles. Straps are made of ¼x1¼ inch steel and have holes for ½ inch lag screws.

Single Type

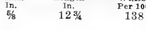
Mfrs. No	Nom. Size Conduit, In.	Wt. Lbs. Per 100	Price Per 100
8925	2	78	**$8.00**
8926	3	100	**10.00**

Double Type

Mfrs. No	Nom. Size Conduit, In.	Wt. Lbs. Per 100	Price Per 100
8927	2	106	**$10.50**
8928	3	150	**15.00**

HUBBARD POTHEAD SUPPORTS

Hot galvanized. To be clamped around cable just below pothead. Has 5 inch wood screw thread.

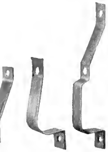


Mfrs. No.	Diam. In.	Length In.	Wt. Lbs. Per 100	Price Per 100
9017	⅝	12¾	138	**$54.75**

HUBBARD SUSPENSION CLAMP STRAPS

REINFORCING STRAPS

Hot Galvanized



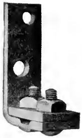
No. 8905 No. 8906 No. 8907

No. 8905 is used to support the messenger bolt at points of extreme stress, such as long spans. No. 8906 is a Safety Strap to prevent the cable's falling if the hangers give way. No. 8907 is a combination of Nos. 8905 and 8906.

Mfrs No.	Size Steel In.	Wt Lbs. Per 100	Price Per 100
8905	1½x⅛	36	**$13.42**
8906	1¾x⅛	76	**23.48**
8907	1¾x⅛	116	**35.62**

HUBBARD MESSENGER HANGERS

UNIVERSAL



Forged from open hearth steel with a special curved groove, which allows them to be used at corners as well as on straight runs. Furnished with two ⅜ inch track bolts. Hot galvanized finish. Length of leg, 5x3¼ inches.

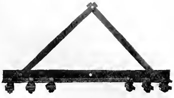
Mfrs. No.	Size Steel Inches	Wt. Lbs. Per 100	Price Per 100
8911	2 x½	325	**$63.00**
8912	1¾x⅜	235	**58.00**

NON-BREAKABLE

Economical to install. Placed on a standard through bolt, requiring no extra nuts. Vertical finger keeps messenger in place while pulled taut. Made of malleable iron, hot galvanized. Curved back fits pole.

Mfrs. No.	For Cable In.	Wt. Lbs. Per 100	Price Per 100
8914	$\frac{5}{16}$ and smaller	150	**$59.50**
8915	⅜ and larger	150	**59.50**

HUBBARD CABLE CROSS ARMS



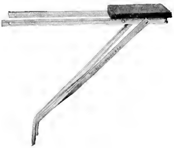
Hot galvanized steel. For telephone cables.

Furnished complete with one bolt messenger clamp and clamp bolts; but without braces. No. 8938 is the standard A. T. & T. Co.'s arm.

Mfrs. No.	For Cables	Size Angle In.	Lgth. In.	Wt. Lbs. Each	Price Each
8923	4	3x3x¼	36	22	**$1.75**
8924	6	3x3x¼	48	30	**2.35**
8933	4	5x3x$\frac{5}{16}$	36	32	**2.40**
8934	6	5x3x$\frac{5}{16}$	48	44	**3.35**
8938	4	5x3x½	48	65	**5.20**

Note—Cable spacing on pole measures 20 inches, except No. 8938, which is 16 inches, on side 6 inches.

PEIRCE POLE SEATS



WOOD SEATS

The frames and braces are of 1x½ in. channel steel. Wood seat of 1¼ in. cypress, boiled in creosote. Hot galvanized or painted.

Mfrs. No.	Seat In.	Over All In.	Wt., Lbs. Per 100	Price Per 100
751	11x12	31	1260	**$420.86**
753	11x20	31	1400	**610.20**

STEEL SEATS

Bars are ⅜ inch square steel and placed with corners up to prevent slipping. Frames and hraces of 1x½ inch channel steel.

Mfrs. No	Seat In.	Over All In.	Wt., Lbs. Per 100	Price Per 100
755	12x13⅞	28	1400	**$505.02**
757	12x11	32	1260	**505.02**

HUBBARD POLE BALCONIES

A. T. & T. CO.

Hot galvanized or painted. For cable poles with cable boxes. Platform extends 43½ inches from pole centers. Legs are of 1½x1½x$\frac{3}{16}$ inch and the platform angles are of 1¾x1¾x$\frac{3}{16}$ inch angles.

Mfrs No.	Wt., Lbs. Each	Price Each
9035	65	$......

Price on application.

HUBBARD MANHOLE LADDERS

Hot galvanized. The rungs pass through the sides and are riveted over on the outside. Rungs are spaced 15 inches apart. Width of ladder 14 inches.

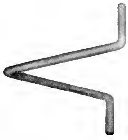
Mfrs. No.	No. of Rungs	Lgth. Ft.	Rung Spacing	Width Inside In.	Wt.Lb. Each	Price Each
9110	4	6	15	12	23	**$4.44**
9111	5	6½	15	12	24½	**4.62**
9112	6	8	15	12	30	**4.80**
9113	7	10	15	12	38	**5.04**
9114	8	11	15	12	42	**5.88**
9115	9	12	15	12	46	**6.60**
9116	10	13	15	12	49	**7.32**
9117	11	14	15	12	53	**8.76**

HUBBARD CABLE DUCT SHIELDS

To protect cable sheaths at entrance of ducts. A. T. & T. Co. specifications No. 20 gage steel, 6 inches long for 3 inch ducts. Hot galvanized.

Mfrs. No.	Wt. Lbs. Per 100	Price Per 100
9140	40	**$30.00**

HUBBARD PULLING-IN IRONS



Hot galvanized. For setting into the concrete or brick walls of street vaults opposite all duct entrances to provide a convenient and strong attachment for the pulling-in blocks. Made of ⅞ inch steel to A. T. & T. Co.'s specifications. Extend from wall eight inches and are designed to straddle one brick.

Mfrs. No.	Wt.Lbs. Per 100	Price Per 100
9120	600	**$118.50**

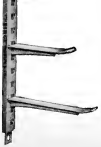
HUBBARD CLAY CONDUIT DOWEL PINS

For use in aligning clay conduits. Plain.

Mfrs. No	Size In	Wt.Lbs. Per 100	Price Per 100
9145	$\frac{5}{16}$x3	8	**$1.00**

PEIRCE UNDERGROUND CABLE RACKS

Hot Galvanized



For manhole and interior cable work. Rack sections made in two lengths which can be combined into almost any desired length. Hooks are cut from open hearth steel T section and have a smooth, well rounded top surface 1½ inches wide which will not injure the sheaths of cable.

Rack Sections

Mfrs. No.	No. Holes	Dimensions, Inches: Hook Hole Spacing	Lgth. Over All	Bolt Hole Spacing	Wt.Lbs. Per 100	Price Per 100
2124	8	1½	15	13⅝	120	**$49.86**
2125	14	1½	24	22½	260	**79.02**
2126	18	1½	30	28½	310	**92.78**

Hooks

Mfrs. No	Extension from Face of Rack	Size Steel In.	Wt.Lbs. Per 100	Price Per 100
2131	4	1½x1$\frac{1}{16}$x$\frac{3}{16}$	52	**$35.98**
2132	7½	1½x1$\frac{1}{16}$x$\frac{3}{16}$	104	**50.98**
2133	10	1½x1$\frac{1}{16}$x$\frac{3}{16}$	126	**62.70**

PEIRCE MINE BRACKETS

Attached to under side of cross timbers by means of ⅝ inch or smaller lag screws or hanger screws.

Mfrs. No	Spacing In.	Wt.Lbs. Per 100	Price Per 100
216	6	104	**$47.18**

PEIRCE SIGN HANGERS

Used for attaching small stop signs to trolley span wires.

Mfrs. No.	Length Overall, In.	Wt.Lb. Per 100	Price Per 100
3830	4½	58	**$36.46**

HUBBARD POLE BANDS

TROLLEY—SOLID

The bolts of the two bolt stud are 1½ inches apart on centers.

One Bolt Mfrs. No.	One Bolt Wt. Lb. Per 100	One Bolt Price Per 100	Nominal Size Pole	Two Bolt Mfrs. No.	Two Bolt Wt. Lb. Per 100	Two Bolt Price Per 00
7214	160	$43.00	4	7224	200	$54.00
7214½	172	46.50	4½	7224½	212	57.50
7215	185	50.00	5	7225	225	61.00
7216	210	56.00	6	7226	250	67.00

TROLLEY—SPLIT

The bolts on three bolt bands are 1½ inches apart on centers.

Two Bolt Mfrs. No.	Two Bolt Wt. Lb. Per 100	Two Bolt Price Per 100	Nominal Size Pole	Three Bolt Mfrs. No.	Three Bolt Wt. Lb. Per 100	Three Bolt Price Per 100
7324	205	$56.00	4	7334	245	$66.00
7324½	220	60.00	4½	7334½	260	70.00
7325	235	64.00	5	7335	275	74.00
7326	255	68.50	6	7336	295	78.50

HUBBARD INSULATED POLE BANDS

Hot Galvanized

Insulated pole bands are in popular use for trolley work. They eliminate one splice on each attachment.

Solid Mfrs. No.	Solid Wt.Lbs. Per 100	Solid Price Per 100	Dia., In. Pole	Dia., In. Band	Split Mfrs. No.	Split Wt.Lbs. Per 100	Split Price Per 100
7254	350	$105.00	4	4½	7244	390	$117.00
7254½	365	109.50	4½	5	7244½	405	121.50
7255	380	114.00	5	5½	7245	420	126.00
7256	400	120.00	6	6⅝	7246	440	132.00
7257	420	126.00	7	7⅝	7247	460	138.00
7258	440	132.00	8	8⅝	7248	480	144.00

HUBBARD POLE BANDS WITH PULL-OFF RODS

Hot Galvanized

The Hubbard pole band with pull-off rod eliminates the necessity for using an individual band for each guy.

Mfrs. No.	Diam., In. Pole	Diam., In. Band	Pull-off Rd., In. Width	Pull-off Rd., In. Depth	Wt.Lbs. Per 100	Price Per 100
7344	4	4½	7½	8½	700	$210.00
7344½	4½	5	8	8½	750	225.00
7345	5	5½	8½	8¾	800	240.00
7346	6	6⅝	9⅝	9 5/16	900	270.00
7347	7	7⅝	10⅝	9 13/16	1000	300.00
7348	8	8⅝	11⅝	10 5/16	1100	330.00

PEIRCE POLE TOP BRACKETS

PRESTEEL

Permits the use of same type of pin for both cross arm and pole work. Pressed out of single plate, ¼ inch thick, with no welds or seams, making it free from flaws. Hot galvanized. Bolt holes, 11/16 inch.

Mfrs. No.	Diam. Pin Hole Inches	Wt.Lbs. Per 100	Price Per 100
3035	13/16	440	$180.06
3036	1 1/16	440	180.06

HUBBARD INSULATED FORKS

Hot Galvanized

By the addition of a standard ⅝ inch through bolt, lag screw or carriage bolt, the insulated forks illustrated may be converted into fork bolts.

No. 8820 is made of 1½x¼ inch flat steel, formed so that the head of the through bolt keeps it from turning. Equipped with insulator No. 357.

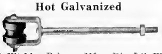
No. 641 is made of 1¼x½ inch channel steel and is provided with a square bolt hole, into which the square shoulders of a carriage bolt fit. Equipped with insulator No. 357.

No. 561 is made of 1x½ inch channel steel and equipped with insulator No. 355. A lug projecting out on each side of the bolt hole prevents fork from turning.

Mfrs. No.	Type	Kind of Bolt	Wt.Lbs. Per 100	Price Per 100
8820	Flat Steel	⅝ In. Through	118	$45.00
641	Chan. Steel	⅝ In. Carriage	115	....
561	Chan. Steel	⅝ In. Through	230	79.80

HUBBARD FORK BOLTS

Hot Galvanized



Mfrs. No.	Dia. In.	Lth. In.	Wt.Lb. Per 100	Price Per 100	Mfrs. No.	Dia. In.	Lth. In.	Wt.Lb. Per 100	Price Per 100
8810	½	10	104	$33.90	8813	⅝	12	156	$43.08
8811	½	12	114	35.26	8814	⅝	14	171	44.80
8812	½	14	124	36.58	8815	⅝	16	186	46.92

PEIRCE INSULATORS

For fork bolts and forks. Has ⅝ inch central wire groove and a 7/16 inch hole.

Mfrs. No.	Wire Groove	Bolt Hole	Wt.Lbs. Per 100	Price Per 100
357	11/16	25/64	40	$16.48

HUBBARD TURNBUCKLES

Two Eyes

Hook and Eye

Eye and Clevis

Size In.	Eye and Eye Mfrs. No.	Eye and Eye Price Per 100	Eye and Hook Mfrs. No.	Eye and Hook Price Per 100	Eye & Clevis Mfrs. No.	Eye & Clevis Price Per 100
⅜x 6	8601	$134.00	8621	$134.00	....	....
½x 6	8602	154.00	8622	154.00	8642	$174.00
½x 9	8603	190.00	8623	190.00	8643	210.00
½x12	8604	234.00	8624	234.00	8644	254.00
⅝x 6	8605	180.00	8625	180.00	8645	210.00
⅝x 9	8606	226.00	8626	226.00	8646	256.00
⅝x12	8607	270.00	8627	270.00	8647	300.00
¾x 6	8608	244.00	8628	244.00	8648	284.00
¾x 9	8609	306.00	8629	306.00	8649	346.00
¾x12	8610	370.00	8630	370.00	8650	410.00

AGENTS FOR W WESTINGHOUSE ELEC & MFG CO

PEIRCE FORGED STEEL PINS

FOR STEEL CROSS-ARMS

With standard 1 inch lead threads for low voltage insulators. Threads are made of special prepared lead alloy to give the desired results.

Short Shank Type

For Steel Cross-Arms and Brackets

Mfrs. No.	Diam. In.	Length, Inches: Above Shoulder	Below Shoulder	Total	Wt.Lbs. Per 100	Price Per 100
972	½	4¾	1¼	6	94	**$23.24**
986	⅝	4¾	1¼	6	105	**33.58**
987	⅝	6	1¼	7¼	116	**38.12**
993A	¾	4¾	1½	6¼	120	**42.36**
993	¾	6	1½	7½	136	**48.72**

Mfrs. No.	Diam. In.	Shoulder Lgth., In.: Above	Below	Total	Wt.Lb. Per 100	Price Per 100
971	½	4¾	4¾	9½	108	**$30.70**
974	½	4¾	5½	10¼	113	**32.94**
980	⅝	4¾	4¾	9½	135	**42.98**
981	⅝	4¾	5½	10¼	142	**45.40**
981A	⅝	4¾	6½	11¼	149	**48.42**
982	⅝	6	4¾	10¾	146	**47.20**
984	⅝	6	5½	11½	152	**49.46**
983	⅝	6	6½	12½	160	**52.50**
990A	¾	4¾	5¾	10½	190	**66.58**
990	¾	6	5¾	11¾	205	**69.62**
991	¾	6	6¾	12¾	218	**65.62**

LAG SCREW TYPE

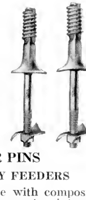
For Pole and Transformer Wiring

Nos. 73, 88 and 94 pins with lag screw shanks are being largely used wherever attachments of vertical runs of wires down the poles are necessary, as in feeders to arc and series lamps, etc.

Mfrs. No.	Diam. In.	Shoulder Lgth., In.: Above	Below	Total	Wt.Lb. Per 100	Price Per 100
973	½	4¾	3	7¾	92	**$26.86**
975	½	6	3	9	103	**30.70**
988	⅝	4¾	3	7¾	108	**34.80**
989	⅝	7½	4	11½	140	**47.52**
994	¾	6	4	10	143	**51.46**

PEIRCE BROAD BASE STEEL PINS

Forged—Hot Galvanized



Designed for supporting heavy primary and secondary lines on wood cross arms.

Spring Thread for 1 Inch Pin Hole

Mfrs. No.: Flat Base	Curved Base	Hght. Above Arm	Lth. Shank	Per 100: Wt. Lb.	Price
1081	**1080**	4½	5½	148	**$57.30**
1083	**1082**	4½	6½	159	**58.05**
Lead Thread for 1 Inch Pin Hole					
1091	**1090**	4½	5½	207	**57.30**
1093	**1092**	4½	6½	218	**58.05**

PEIRCE INSULATOR PINS

No. 3820 No. 3825

FOR RAILWAY FEEDERS

Designed for use with composition feeder insulators, at points of excessive load. Drop forged, in one piece, from open hearth steel.

Mfrs. No	Flange Base In.	Ins. Threads In.	Wt.Lb. Per 100	Price Per 100
3820	2½	1	354	**$134.16**
3825	2½	1	276	**127.52**

HUBBARD INSULATOR PINS

WESTERN UNION STANDARD

Cobs are of the best grade of air dried oak, turned to fit a gage and boiled in paraffine to exclude all moisture. Pins are made of stiff, high carbon steel, with clean threads, square nuts and clipped, round washers, and can be used with standard insulators having 1 inch pin holes.

Mfrs. No.	Diam. In.	Length, Inches: Above Shoulder	Below Shoulder	Wt.Lbs. Per 100	Price Per 100
8000	½	4¼	5	73	**$12.67**
8005	⅝	4¼	5	110	**19.48**

WESTERN UNION SHORT SHANK

For use on transposition brackets on steel arms made in ½ inch and ⅝ inch diameters and in two lengths, 4 inches above the arm, with a standard cob for a standard glass insulator, and 5 inches high with a long cob for a double petticoat transposition insulator, the cobs in both cases being of 1 inch diameter. Hot galvanized or plain.

8010 8011 8006

Mfrs. No.	Diam. In.	Lgth. In. Above Shoulder	Lgth. In. Below Shoulder	Wt.Lbs. Per 100	Price Per 100
8010	½	4	1	48	**$14.30**
8011	½	5	1	54	**18.68**
8015	⅝	4	1	65	**20.92**
8016	⅝	5	1	73	**26.80**
		Lag Screw Pins			
8006	½	4¼	3	....	**12.67**
8007	⅝	4¼	3	....	**19.48**

HUBBARD WOOD TOP PINS

WITH STEEL BOLTS

No. 8078 No. 8070

Bolts Hot Galvanized

Composed of seasoned locust tops, thoroughly impregnated with paraffine, and stiff steel fin bolts. Complete with nut and washer. Bolts and tops are shipped assembled.

For 1 Inch Insulator Pin Hole

Mfrs No.	Size, Wood Top, Inches: Diam. Top	Diam Bottom	Lgth.	Size of Bolt, Inches: Diam.	Lgth.	Lgth. Below Top	Approx. Wt.Lb. Per 100	Price Per 100
8070	1	1⅞	4½	½	5½	1	60	**$25.34**
8071	1	2¼	5¼	½	6½	1¼	68	**26.64**
8074	1	1⅞	4½	½	9½	5	75	**27.92**
8075	1	2¼	5¼	½	10½	5¼	85	**29.74**
8076	1	2¼	5¼	½	11½	6¼	96	**30.46**
For 1⅜ Inch Insulator Pin Hole								
8072	1⅜	2¼	4½	⅝	5½	1	95	**30.36**
8073	1⅜	2¼	5¼	⅝	6½	1¼	105	**32.40**
8077	1⅜	2¼	4½	⅝	9½	5	130	**35.56**
8078	1⅜	2¼	4½	⅝	10½	6	136	**38.30**
8079	1⅜	2¼	5¼	⅝	10½	5¼	140	**39.86**
8080	1⅜	2¼	6½	⅝	12½	6	170	**44.54**
8081	1⅜	2½	8	⅝	14	6	196	**55.26**
8082	1⅜	2¾	9	⅝	16	7	221	**59.48**

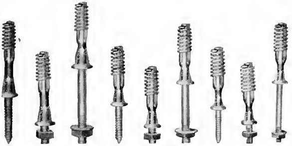
PEIRCE FORGED STEEL PINS

FOR LOW VOLTAGE INSULATORS

Hot Galvanized

Drop forged in one piece from open hearth steel and hot galvanized. Equipped with one inch spiral spring thread which provides for expansion and contraction. Has wide bearing flange and square shoulder.

Only a small hole is required in cross-arm when installing pins.



94 93 91 88 86 80 73 72 71

SHORT SHANK TYPE

For Steel Cross-Arms and Brackets

Mfrs. No.	Diam. In.	Length, Inches Above Shoulder	Below Shoulder	Total Lgth.	Wt. Lbs. Per 100	Price Per 100
72	½	4¾	1¼	6	67	$23.24
86	⅝	4¾	1¼	6	85	33.58
87	⅝	6	1¼	7¼	96	38.12
93	¾	6	1½	7½	123	49.72
93A	¾	4¾	1½	6¼	107	42.36

LONG SHANK TYPE

For Wood Cross-Arms

Mfrs. No.	Diam. In.	Length, Inches Above Shoulder	Below Shoulder	Total Lgth.	Wt. Lbs. Per 100	Price Per 100
71	½	4¾	4¾	9½	81	$30.70
74	½	4¾	5½	10¼	86	32.94
80	⅝	4¾	4¾	9½	115	42.98
81	⅝	4¾	5½	10¼	122	45.40
81A	⅝	4¾	6½	11¼	129	48.42
82	⅝	6	4¾	10¾	126	47.20
84	⅝	6	5½	11½	132	49.46
83	⅝	6	6½	12½	140	52.50
90	¾	6	5¾	11¾	192	69.62
91	¾	6	6¾	12¾	205	75.62
90A	¾	4¾	5¾	10½	177	66.58

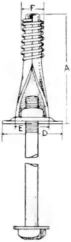
LAG SCREW TYPE

For Poles and Transformer Wiring

Mfrs. No.	Diam. In.	Length, Inches Above Shoulder	Below Shoulder	Total Lgth.	Wt. Lbs. Per 100	Price Per 100
73	½	4¾	3	7¾	65	$26.86
75	½	6	3	9	76	....
88	⅝	4¾	3	7¾	88	34.80
89	⅝	7½	4	11½	120	47.52
94	¾	6	4	10	130	51.46

PEIRCE PRESTEEL INSULATOR PINS

FOR WOOD OR STEEL ARMS



Can be used on either steel or wood arms, any size wood arm, and on arms bored for any size of pin. Pin is fastened to the arms with either a ½ inch or ⅝ inch through bolt. Nut fits within the body of the pin and is held from turning. Tightened with wrench at head of bolt. Owing to the broad face bearing on the arm, a minimum strain is put on the bolt. Special steel bolts are unnecessary, machine bolts being used. Pin will break a No. 6 hard drawn copper conductor with the strain applied in any direction and without deflection of the pin. Pin equipped with spring threads that fasten in a way which will not lock insulator. Made of open hearth steel. Hot galvanized.

For Flat Top Arms

Mfrs. No.	Dimensions, Inches A	D	E	F	Wt. Lbs. Per 100	Price Per 100
5201	5	3	1½	1	90	$57.02
5202	6½	3¼	1¾	1	112	72.00
5203	8	3½	2	1	144	90.02
5211	6½	3¼	1¾	1⅜	132	74.56
5212	8	3½	2	1⅜	160	93.02

For Round Top Arms

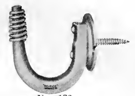
Mfrs. No.	A	D	E	F	Wt. Lbs. Per 100	Price Per 100
5221	5	3	1½	1	90	$57.02
5222	6½	3¼	1¾	1	112	72.00
5223	8	3½	2	1	144	90.02
5231	6½	3¼	1¾	1⅜	132	74.56
5232	8	3½	2	1⅜	160	93.02

BOLTS—For Presteel Pins

Mfrs. No.	Size, Inches	Wt. Lbs. Per 100	Price Per 100
5240	½x2 With Nut and Nut Lock	24	$8.94
5241	⅝x2 With Nut and Nut Lock	39	12.58
5246	½x6 With Lock Washer and Nut	44	12.88
5247	⅝x6 With Lock Washer and Nut	69	19.52

PEIRCE PRESTEEL SCREW PIN BRACKETS

No. 122



No. 132

Has flat head wood screw fastened to bracket, so may be screwed into a cross arm without having a hole or using tools. Hot galvanized.

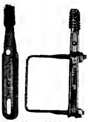
Mfrs. No.	Screw No. In.	Base In.	Wt. Lbs. Per 100	Price Per 100
122	20-2½	2½	78	$48.00
132	20-2½	3½	165	79.98

Note—Height above base, No. 122, 4¾ inches; extension from wall, No. 132, 4½ inches.

PEIRCE CLAMP PINS

Hot Galvanized

FOR LOW VOLTAGE INSULATORS



Nos. 4300, 4400

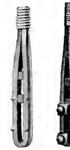
Eliminates boring of holes in cross arms; clamps used to fasten pins to arms also tightly bind together fibre of wood at ends and prevent cracking and splitting of wood. Their use permits a lighter timber being used for this purpose.

Mfrs. No.	Cross Arms Inches	Std. Pkg.	Wt.Lb. Per 100	Price Per 100
4300	4x5*	300	84	**$47.88**
4400	4x5*	300	114	**52.50**
4401	3½x4½*	300	110	**51.98**

*And smaller.

FOR HIGH VOLTAGE INSULATORS

Made of a single piece of open hearth channel steel bent double, riveted together and separated by spacers. One side of pin has four sharp prongs which bite into wooden arms and prevent deflection. When pin is used on steel arm, prongs are faced away from arm and are so located as not to interfere with clamp nuts. Fitted with separable, drawn steel thimbles, 1 7/32 inch in diameter, and with 1⅜ inch lead threads.



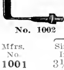
No. 4860 No. 4810

1 7/32 Inch Separable Thimble Type

Mfrs. No.	Size Channel Inches	Pin Height Above Arm, Inches: When Mounted on Angle or Pipe	When Mounted on Wood Arm	Wt.Lb. Per 100	Price Per 100
4806	1x½	6	3¾	136	**$75.00**
4807	1x½	7	4¾	152	**78.90**
4808	1x½	8	5¾	203	**81.02**
4809	1x½	9	6¾	217	**90.02**
4810	1x½	10	7¾	230	**96.00**
4811	1x½	11	8¾	244	**105.04**
4812	1x½	12	9¾	257	**112.52**
	1⅜ Inch Lead Thread Type				
4856	1x½	6	3¾	239	**76.85**
4857	1x½	7	4¾	254	**80.85**
4858	1x½	8	5¾	268	**83.02**
4859	1x½	9	6¾	278	**92.25**
4860	1x½	10	7¾	288	**98.37**
4861	1x½	11	8¾	298	**107.62**
4862	1x½	12	9¾	314	**115.30**

Clamps are not included in pin prices. For price of clamps see another page.

PEIRCE CROSS ARM STRAPS



No. 1002

Drop forged from ½ inch round steel and hot galvanized. Have broad, flat bearing on arm, which holds pins firmly upright. Rolled threads and hot punched square nuts.

Light Type

Mfrs. No.	Size Arm Inches	Size Strap, Inches: Flat Section	Round Section	Wt.Lb. Per 100	Price Per 100
1001	3¼x4¼	3/16x1⅛	½	80	**$32.54**
1002	3½x4½	3/16x1⅛	½	85	**34.02**
1003	3¾x4¾	3/16x1⅛	½	90	**35.54**
1004	4 x5	3/16x1⅛	½	95	**37.18**
		Heavy Type			
2001	3¼x4¼	3/16x1⅛	⅝	132	**42.00**
2002	3½x4½	3/16x1⅛	⅝	138	**44.98**
2003	3¾x4¾	3/16x1⅛	⅝	144	**47.98**
2004	4 x5	3/16x1⅛	⅝	150	**50.52**

PEIRCE ANGLE CLAMPS

Used for supporting clamp pins on cross arms of angle section. Are made of ⅝ inch round steel; have rolled threads and are hot galvanized. Formed to fit angles having notches ¼ inch deep in each leg.

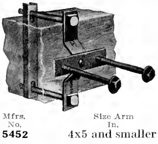
Mfrs. No.	Size Arm In.	Wt. Lbs. Per 100	Price Per 100
159	2½x2½	114	**$23.98**
160	3 x2	110	**25.34**
161	3 x3	125	**27.66**
162	3½x3½	141	**30.02**

PEIRCE PIPE CLAMPS

Designed to grip firmly pipes from 1¼ to 2 inches in diameter. Consist of a ⅝ inch U bolt and a cast iron pillow block, both of which are hot galvanized. Properly fit all clamp pipe.

Mfrs. No.	Nominal Diam. of Pipe, In.	Wt. Lbs. Per 100	Price Per 100
165	1¼	158	**$10.00**
166	1½	163	**11.50**
167	2	170	**12.00**

PEIRCE FUSE BLOCK CLAMPS

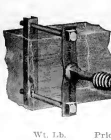


Of open hearth steel Hot galvanized. A secure means of fasten fuse blocks to arms. Bind the fibres of wood arms together and keep them from splitting. Complete with cross arm straps.

Mfrs. No.	Size Arm In.	Wt. Lbs Per 100	Price Per 100
5452	4x5 and smaller	191	**$81.02**

PEIRCE SIDE CLAMP PINS

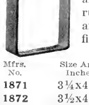
Made of open hearth steel, hot galvanized. Furnished complete with cross arm straps. Prevents primary leads from line wires to fuse blocks from swinging together in the wind or breaking off. Binds the fibres of the transformer wood arms together and keeps them from splitting.



Mfrs. No.	Pin Ext. In	Size Arm In.	Wt. Lb. Per 100	Price Per 100
4452	5¼	4x5 and smaller	231	**$81.02**

PEIRCE CROSS ARM STRAPS

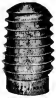
DROP FORGED—Hot Galvanized



Used for attaching Nos. 4400 and 4401 channel clamp pins to the cross arm in an horizontal position for running vertical leads between cross arms to transformers for lighting fixtures.

Mfrs. No.	Size Arm Inches	Size Strap In.: Flat	Round	Wt.Lb. Per 100	Price Per 100
1871	3¼x4¼	3/16	½	94	**$32.98**
1872	3½x4½	3/16	½	100	**35.68**
1873	3¾x4¾	3/16	½	106	**40.16**
1874	4 x5	3/16	½	112	**43.48**

LEAD THREAD PIN THIMBLES



May be used on No. 5100 series forged steel pins, high voltage clamp pins and pole top pins. Prices of pins include drawn zinc thimbles. If lead thimbles are used instead the price given in the second list should be added.

Mfrs. No.	Insulator Bore, In.	Wt. Lbs. Per 100	Price Per 100 Separately	Price Per 100 With Pins
5020	1	355	**$22.10**	**$13.26**
5025	1⅜	565	**24.30**	**15.46**

MALLEABLE THIMBLE TYPE

Made by casting lead threads on No. 5019 thimble adapter; used with cast iron pins having standard ¾ inch center bolt or with No. 4100 series pins. Made to screw directly into insulator having 1⅜ inch pin hole.

Mfrs. No.	For Ins. Pin Hole Inches	Hole in Thimble	Wt.Lb. Per 100	Price Per 100
5018	1⅜	¾	118	**$52.50**

DRAWN ZINC SEPARABLE THIMBLE

As these thimbles are included with the pins with which they are listed, it is not necessary to order them separately, except when they are to be cemented into insulators used for replacements.

Mfrs. No.	Diam. of Thimble	Size Insulator Pin Hole	Wt.Lb. Per 100	Price Per 100
5051	$\frac{27}{32}$	1	6.5	**$20.00**
5052	$1\frac{7}{32}$	1⅜	12.5	**20.00**
5053	$1\frac{7}{16}$	1½	17.5	**22.50**

PEIRCE PRESTEEL CROSS ARM SADDLES

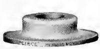
Used with forged steel pins on round top cross arms. Helps to prevent the arm splitting when subject to heavy strain.

Mfrs. No.	Cross Arm Width, In.	Pin Hole Diam., In.	Wt. Lbs Per 100	Price Per 100
5001	3¼	$\frac{13}{16}$	87	**$17.94**
5002	3½	$\frac{13}{16}$	93	18.78
5003	3¾	$\frac{13}{16}$	99	19.64
5004	4	$\frac{13}{16}$	105	20.58
5005	5	$\frac{13}{16}$	130	25.20
5011	3¼	$1\frac{1}{16}$	87	**17.94**
5012	3½	$1\frac{1}{16}$	93	**18.79**
5013	3¾	$1\frac{1}{16}$	99	**19.64**
5014	4	$1\frac{1}{16}$	105	**20.58**
5015	5	$1\frac{1}{16}$	130	**25.20**

PEIRCE WASHERS

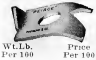
CENTERING PRESTEEL—Hot Galvanized

Used on lower end of forged steel pins to center pin when used on an existing cross arm with holes bored for wood pins.



Mfrs. No.	Diam., In. Fits Hole	Diam., In. Pin Hole	Wt. Per 100	Price Per 100
5030	1¼	$\frac{13}{16}$	28	**$5.50**
5031	1¼	$1\frac{1}{16}$	27	**5.50**
5032	1½	$\frac{13}{16}$	31	**5.92**
5033	1½	$1\frac{1}{16}$	39	**5.92**

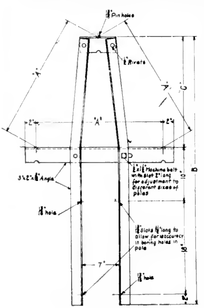
LOCK WASHERS



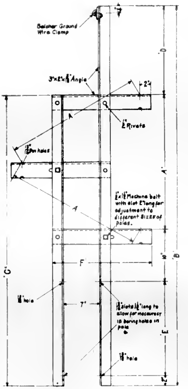
Designed especially for use with long shank insulator pins.

Mfrs. No.	Size Pin Hole, In.	Size of Steel	Wt.Lb. Per 100	Price Per 100
5040	$\frac{13}{16}$	12 Ga.x1¾	42	**$3.75**
5041	$1\frac{1}{16}$		40	**3.75**

PEIRCE HI-TEN POLE EXTENSIONS



Type A



Type B

For use when it becomes necessary to run a high voltage line on poles which are too short for such service or are carrying too many wires to allow them to be lowered. Two types are made. Type A and Type B, with and without a bayonet for the overhead ground wire.

The extensions are fastened to the pole by two ⅝ in. through bolts, and are adjustable to poles of from 7 to 10 inch top diameters. One hole in each leg is slotted 1½ inches long to allow for inaccuracies in boring the hole in the pole. All extensions are equipped with $\frac{13}{16}$ inch pin holes and notches in the 3 inch leg of the angle, so that either forged steel or clamp pins with No. 160 angle clamps may be used. Belcher ground wire clamps are included with No. 2380-1-2 extensions.

Type A

Mfrs. No.	Wt. Lbs.	Price Each
2370	35	**$6.00**
2371	45	**7.80**

Type B

Mfrs. No.	Wt. Lbs.	Price Each
2380	50	**7.90**
2381	61	**9.85**
2382	80	**12.60**

Type A

Mfrs. No.	Triangular Wire Spacing	Dimensions in Inches A	B	C	D	E	F
2370	24	24	52	21	....	....	....
2371	36	36	62	31	....	....	....

Type B

Mfrs. No.	Triangular Wire Spacing	A	B	C	D	E	F
2380	26	26	75	57	18	18	19
2381	36	36	91½	67½	24	18	24
2382	52	52	127	95	32	30	30

PEIRCE POLE TOP PINS

Hot Galvanized

PRESTEEL TYPES

No. 3040 No. 3048

Steel pins are pressed from sheet steel, which gives the maximum strength for a given weight, and are furnished with spring threads or lead threads, which screw into insulators with 1 and 1⅜ inch pin holes, and with drawn separable thimbles for cementing into insulators of these two sizes. Mounting holes are $\frac{11}{16}$ inch.

Spring Thread Type

Mfrs. No.	Gauge of Steel	Dimen., In. Length	Hole Spacing	Diam. of Thread	Wt.Lb. Per 100	Price Per 100
3040	9	18	8	1	240	**$111.32**
3045	9	24	8	1	340	**151.54**

Lead Thread Type

Mfrs. No.	Gauge of Steel	Length	Hole Spacing	Diam. of Thread	Wt.Lb. Per 100	Price Per 100
3034	9	18	8	1	331	**114.07**
3039	9	18	8	1⅜	404	**114.07**
3044	9	24	8	1	447	**155.27**
3049	9	24	8	1⅜	510	**155.27**

Separable Thimble Type

Mfrs. No.	Gauge of Steel	Length	Hole Spacing	Diam. of Thread	Wt.Lb. Per 100	Price Per 100
3042	9	18	8	$\frac{27}{32}$	275	**123.92**
3043	9	18	8	$1\frac{7}{32}$	286	**123.92**
3047	9	24	8	$\frac{27}{32}$	400	**163.68**
3048	9	24	8	$1\frac{7}{32}$	406	**163.68**

PIPE POLE TYPES

For the higher voltage lines the pipe pins are in general use, because of their strength and light weight, and are superseding the old types of cast and malleable pins. They are furnished with either lead thread for 1⅜ inch bore insulators, or $1\frac{7}{32}$ inch drawn separable thimble for cementing into insulators of 1⅜ inch bore, which is the same thimble as is furnished with forged steel and clamp pins. Mounting holes are $\frac{11}{16}$ inch.

No. 3079

Separable Thimble Type

Mfrs. No.	Dimensions, Inches: Size of Pipe	Length	Hole Spacing	Diam. of Thread	Wt.Lb. Per 100	Price Per 100
3060	1¼	18	8	$1\frac{7}{32}$	220	**$112.50**
3061	1½	18	8	$1\frac{7}{32}$	340	**115.00**
3063	1½	24	8	$1\frac{7}{32}$	703	**180.00**
3065	1½	28	8	$1\frac{7}{32}$	823	**210.00**
3066	2	28	8	$1\frac{7}{32}$	1098	**280.00**
3067	1½	32	10	$1\frac{7}{32}$	945	**240.00**
3068	2	32	10	$1\frac{7}{32}$	1265	**320.00**
3069	2	36	10	$1\frac{7}{32}$	1433	**360.00**

Lead Thread Type

Mfrs. No.	Size of Pipe	Length	Hole Spacing	Diam. of Thread	Wt.Lb. Per 100	Price Per 100
3070	1¼	18	8	1⅜	437	**112.50**
3071	1½	18	8	1⅜	457	**115.00**
3073	1½	24	8	1⅜	826	**180.00**
3075	1½	28	8	1⅜	946	**210.00**
3076	2	28	8	1⅜	1221	**280.00**
3077	1½	32	10	1⅜	1078	**240.00**
3078	2	32	10	1⅜	1398	**320.00**
3079	2	36	10	1⅜	1566	**360.00**

PEIRCE POLE TOP PINS

Hot Galvanized

ANGLE STEEL TYPE

No. 3031

Used where it is necessary to support 1 inch bore insulator at a considerable height above the pole top. Ground wire bayonets which may be threaded for standard insulators are shown on another page. Mounting holes are $\frac{11}{16}$ inch.

Spring Thread Type

Mfrs. No.	Dimensions, Inches: Size of Angle	Lgth.	Hole Spac.	Diam. of Thread	Wt.Lb. Per 100	Price Per 100
3030	2x2x$\frac{3}{16}$	18	8	1	360	**$168.06**
3031	2x2x$\frac{3}{16}$	24	8	1	460	**228.08**
3033	2x2x$\frac{3}{16}$	36	10	1	600	**270.08**

Lead Thread Type

Mfrs. No.	Size of Angle	Lgth.	Hole Spac.	Diam. of Thread	Wt.Lb. Per 100	Price Per 100
3001	2x2x$\frac{3}{16}$	18	8	1	469	**172.20**
3002	2x2x$\frac{3}{16}$	24	8	1	569	**233.10**
3003	2x2x$\frac{3}{16}$	36	10	1	709	**276.72**

HEAVY CHANNEL TYPE

The No. 3020 type is composed of two heavy channels riveted back to back, which makes a strong and light construction. Mounting holes are $\frac{11}{16}$ inch.

No. 3032

Spring Thread Type

Mfrs. No.	Dimensions, Inches: Size of Channel	Lgth.	Hole Spac.	Diam. of Thread	Wt.Lb. Per 100	Price Per 100
3020	1¾x⅝	18	8	1⅜	470	**$194.82**
3022	1¾x⅝	25	8	1⅜	600	**252.10**

Lead Thread Type

Mfrs. No.	Size of Channel	Lgth.	Hole Spac.	Diam. of Thread	Wt.Lb. Per 100	Price Per 100
3024	1¾x⅝	18	8	1⅜	587	**199.62**
3025	1¾x⅝	25	8	1⅜	723	**258.30**

LIGHT CHANNEL TYPE

No. 3000 No. 3012 No. 3013

Nos. 3000, 3010 and 3012 pole top pins are used for signal wires. No. 3000 is offset so as to bring the insulator over the center of the pole when it is necessary to fasten th epin to the side of the pole. No. 3010 is a straight pin, similar to No. 3012. No. 3013 is recommended for use with 1 inch bore insulators on light 6,600 and 11,000 volt lines.

Spring Thread Type

Mfrs. No.	Dimensions, Inches: Size of Channel	Lgth.	Hole Spac.	Mount. Holes	Dim. Thrd.	Wt.Lb. Per 100	Price Per 100
3000	1 x½	18	4	$\frac{7}{16}$	1	144	**$63.02**
3010	1 x½	12	4	$\frac{7}{16}$	1	88	**36.60**
3012	1 x½	18	4	$\frac{7}{16}$	1	128	**63.02**
3013	1⅞x1	15	4	$\frac{11}{16}$	1	150	**75.60**

Lead Thread Type

Mfrs. No.	Size of Channel	Lgth.	Hole Spac.	Mount. Holes	Dim. Thrd.	Wt.Lb. Per 100	Price Per 100
3014	1 x½	18	4	$\frac{7}{16}$	1	201	**64.57**
3015	1 x½	12	4	$\frac{7}{16}$	1	145	**37.50**
3016	1 x½	18	4	$\frac{7}{16}$	1	185	**64.57**
3017	1⅞x1	15	4	$\frac{11}{16}$	1	207	**77.47**

PEIRCE FORGED STEEL PINS

Hot Galvanized

WITH LEAD THREADS

These pins are made of a special stiff alloy steel, and are considerably stronger and lighter than the standard 1500-pound series pins. Top of pin is threaded to accommodate a Peirce separable drawn thimble so that by melting off or otherwise removing the lead thread, the pin may be used with an insulator having a separable drawn thimble cemented into it. The lead thread is cast on in such a way as to be firmly locked against removal. Threads are uniform in size and entirely free from fins, insuring a perfect fit in the insulator pin hole.

LONG SHANK PINS FOR WOOD ARMS

With Threads for Screwing Into Insulator with a 1 Inch Pin Hole

Mfrs. No.	Dimensions in Inches A	B	C	D	E	F	G	Wt.Lb. Per 100	Price Per 100
5310	5½	6	¾	2½	¾	1	1⅝	244	**$80.00**
5312	6	6	¾	2½	¾	1	1⅝	250	**82.50**
5314	7	6	¾	2½	¾	1	1⅝	262	**85.00**

With Threads for Screwing Into Insulators with a 1⅜ Inch Pin Hole

Mfrs. No.	A	B	C	D	E	F	G	Wt.Lb. Per 100	Price Per 100
5326	7	6½	¾	3	1	1⅜	2⅜	439	**132.50**
5328	8	6½	¾	3	1	1⅜	2⅜	457	**137.50**
5330	9	6½	¾	3	1	1⅜	2⅜	473	**142.50**
5332	10	6½	¾	3	1	1⅜	2⅜	491	**147.50**
5334	11	6½	¾	3¾	1⅛	1⅜	2⅜	664	**155.00**
5336	12	6½	¾	3¾	1⅛	1⅜	2⅜	700	**161.25**
5338	13	6½	¾	3¾	1⅛	1⅜	2⅜	736	**167.50**
5342	15	6½	¾	3¾	1⅛	1⅜	2⅜	772	**173.75**

SHORT SHANK PINS FOR STEEL ARMS

With Threads for Screwing Into Insulators with a 1 Inch Pin Hole

Mfrs. No.	Dimensions in Inches A	B	C	D	E	F	G	Wt.Lb. Per 100	Price Per 100
5309	5½	1½	¾	2½	¾	1	1⅝	178	**$70.00**
5311	6	1½	¾	2½	¾	1	1⅝	184	**72.50**
5313	7	1½	¾	2½	¾	1	1⅝	196	**75.00**

With Threads for Screwing Into Insulators with a 1⅜ Inch Pin Hole

Mfrs. No.	A	B	C	D	E	F	G	Wt.Lb. Per 100	Price Per 100
5325	7	1½	¾	3	1	1⅜	2⅜	373	**117.50**
5327	8	1½	¾	3	1	1⅜	2⅜	391	**122.50**
5329	9	1½	¾	3	1	1⅜	2⅜	407	**127.50**
5331	10	1½	¾	3	1	1⅜	2⅜	425	**132.50**
5333	11	1½	¾	3¾	1⅛	1⅜	2⅜	568	**140.00**
5335	12	1½	¾	3¾	1⅛	1⅜	2⅜	604	**146.25**
5337	13	1½	¾	3¾	1⅛	1⅜	2⅜	650	**152.50**
5341	15	1½	¾	3¾	1⅛	1⅜	2⅜	686	**158.75**

PEIRCE FORGED STEEL PINS

Hot Galvanized

WITH SEPARABLE THIMBLES

Like the standard forged steel pins, these pins are forged from a solid bar of open hearth steel. The top of the pin is threaded with a standard ¾ inch thread 1¾ inches long so that it may be used with any separable malleable thimble.

These pins may also be used with the Peirce thimble adapter which is threaded on the outside to accommodate an insulator having a Peirce drawn separable thimble cemented into it.

Unless otherwise specified, these pins are furnished complete with malleable iron thimbles for cementing into insulators with a 1⅜ inch pin hole.

The lead thread thimbles for screwing directly into the insulator pin hole, may also be used with these pins.

LONG SHANK PINS FOR WOOD ARMS

With Malleable Thimble for Cementing Into a 1⅜ Inch Insulator Pin Hole

Mfrs. No.	Dimensions in Inches A	B	C	D	F	G	Wt.Lb. Per 100	Price Per 100
4120	5	6½	¾	2½	1⅛	2½	283	**$100.87**
4122	5½	6½	¾	2½	1⅛	2½	310	**103.87**
4124	6	6½	¾	2½	1⅛	2½	337	**108.95**
4126	7	6½	¾	3	1⅛	2½	387	**133.95**
4128	8	6½	¾	3	1⅛	2½	432	**143.42**
4130	9	6½	¾	3	1⅛	2½	477	**156.40**
4132	10	6½	.¾	3	1⅛	2½	522	**169.92**
4134	11	6½	¾	3½	1⅛	2½	554	**189.45**
4136	12	6½	¾	3½	1⅛	2½	589	**205.60**
4138	13	6½	¾	3½	1⅛	2½	624	**233.30**
4140	14	6½	¾	3¾	1⅛	2½	743	**226.02**
4142	15	6½	¾	3¾	1⅛	2½	827	**240.37**

SHORT SHANK PINS FOR STEEL ARMS

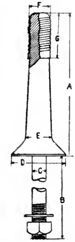
With Malleable Thimble for Cementing Into a 1⅜ Inch Insulator Pin Hole

Mfrs. No.	Dimensions in Inches A	B	C	D	F	G	Wt.Lb. Per 100	Price Per 100
4119	5	1¾	¾	2½	1⅛	2½	212	**$87.90**
4121	5½	1¾	¾	2½	1⅛	2½	239	**90.40**
4123	6	1¾	¾	2½	1⅛	2½	266	**95.07**
4125	7	1¾	¾	3	1⅛	2½	316	**120.97**
4127	8	1¾	¾	3	1⅛	2½	361	**130.45**
4129	9	1¾	¾	3	1⅛	2½	406	**143.42**
4131	10	1¾	¾	3	1⅛	2½	451	**156.97**
4133	11	1¾	¾	3½	1⅛	2½	483	**176.50**
4135	12	1¾	¾	3½	1⅛	2½	518	**186.95**
4137	13	1¾	¾	3½	1⅛	2½	553	**195.32**
4139	14	1¾	¾	3¾	1⅛	2½	672	**213.05**
4141	15	1¾	¾	3¾	1⅛	2½	756	**224.92**

PEIRCE FORGED STEEL PINS

FOR WOOD ARMS

With Separable Thimbles



For high voltage insulators; drop forged with wide bottom flange, from open hearth steel and hot galvanized. The separable thimble, for cementing inside the insulator, is drawn from eighteen gage zinc. Expansion of this light shell in hot weather is so slight that all possibility of weakening stresses being set up in insulators is eliminated. Provision for pin expansion is provided for in having shell fitted with a cork disc on top and a loose fitting thread, whereby as pin expands its threads ride farther up on thimble threads and cork disc compresses and takes up the strain. Are made in three series of strength, a 1500, 3000 and 4500 pound series, each developing its rated strength on a dead end pull exerted at the insulator groove, with a deflection of less than ten degrees.

1500 Pound Series for Insulators with 1 Inch Pin Hole

Mfrs. No.	Dimensions, Inches A	B	C	D	Wt.Lb. Per 100	Price Per 100
5102	3½	5½	¾	2¼	168	**$72.16**
5104	4	5½	¾	2¼	180	**76.24**
5106	4½	5½	¾	2¼	192	**80.34**
5108	5	5½	¾	2¼	204	**84.42**
5110	5½	5½	¾	2¼	216	**89.20**
5112	6	5½	¾	2¼	228	**94.66**
5114	7	5½	¾	3	286	**120.52**
5116	8	5½	¾	3	308	**134.14**

Dimensions, Inches: F, $\frac{27}{32}$; G, 2.

1500 Pound Series for Insulators with 1⅜ Inch Pin Hole

5118	4	6½	¾	2½	246	**89.58**
5120	5	6½	¾	2½	273	**98.44**
5122	5½	6½	¾	2½	300	**100.88**
5124	6	6½	¾	2½	327	**108.32**
5126	7	6½	¾	3	377	**130.72**
5128	8	6½	¾	3	422	**139.98**
5130	9	6½	¾	3	467	**152.64**
5132	10	6½	¾	3	512	**165.84**
5134	11	6½	¾	3½	544	**184.90**
5136	12	6½	¾	3½	579	**200.66**
5138	13	6½	¾	3½	614	**203.30**
5140	14	6½	¾	3¾	733	**220.60**
5142	15	6½	¾	3¾	817	**232.18**
5144	16	6½	¾	3¾	901	**244.58**

Dimensions, Inches: F, $1\frac{7}{32}$; G, 2½.

3000 Pound Series for Insulators with 1⅜ Inch Pin Hole

5146	4	8½	1	2½	387	**115.46**
5148	5	8½	1	2½	413	**128.00**
5150	5½	8½	1	2½	447	**139.58**
5152	6	8½	1	2½	473	**145.60**
5154	7	8½	1	3	496	**160.00**
5156	8	8½	1	3	561	**173.62**
5158	9	8½	1	3	626	**187.92**
5160	10	8½	1	3	691	**205.60**
5162	11	8½	1	3½	853	**231.50**
5164	12	8½	1	3½	906	**245.12**
5166	13	8½	1	3½	960	**260.78**
5168	14	8½	1	3¾	1010	**283.22**
5170	15	8½	1	3¾	1095	**301.20**
5172	16	8½	1	3¾	1180	**326.14**

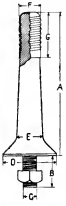
Dimensions, Inches: F, $1\frac{7}{32}$; G, 2½.

4,500 pound series with thimbles for cementing into insulators with 1½ inch pin holes. Prices on request.

PEIRCE FORGED STEEL PINS

FOR STEEL ARMS

With Separable Thimbles



For mounting high voltage insulators on steel arms. Are a one-piece drop forging, with wide flange base and light zinc thimble for cementing into insulators. Hot galvanized finish. Thimble and pin expansion is provided for by having shell fitted with a cork disc on top and a loose fitting thread, whereby as pin expands its threads ride farther up on thimble threads and cork disc compresses and takes up the strain. Made in three series of strengths, each developing its rated strength on a dead end pull exerted at the insulator groove with a deflection of less than ten degrees.

1500 Pound Series for Insulators with 1 Inch Pin Hole

Mfrs. No.	Dimensions, Inches A	B	C	D	Wt.Lb. Per 100	Price Per 100
5101	3½	1¾	¾	2¼	110	**$61.23**
5103	4	1¾	¾	2¼	122	**65.36**
5105	4½	1¾	¾	2¼	134	**69.44**
5107	5	1¾	¾	2¼	146	**73.54**
5109	5½	1¾	¾	2¼	158	**78.32**
5111	6	1¾	¾	2¼	170	**83.76**
5113	7	1¾	¾	3	228	**109.62**
5115	8	1¾	¾	3	250	**123.24**

Dimensions, Inches: F, $\frac{27}{32}$; G, 2.

1500 Pound Series for Insulators with 1⅜ Inch Pin Hole

5117	4	1¾	¾	2½	175	**76.96**
5119	5	1¾	¾	2½	202	**85.78**
5121	5½	1¾	¾	2½	229	**88.22**
5123	6	1¾	¾	2½	256	**92.78**
5125	7	1¾	¾	3	306	**118.06**
5127	8	1¾	¾	3	351	**127.30**
5129	9	1¾	¾	3	396	**139.98**
5131	10	1¾	¾	3	441	**153.20**
5133	11	1¾	¾	3½	473	**172.26**
5135	12	1¾	¾	3½	508	**182.46**
5137	13	1¾	¾	3½	543	**190.62**
5139	14	1¾	¾	3¾	662	**207.92**
5141	15	1¾	¾	3¾	746	**219.52**
5143	16	1¾	¾	3¾	830	**231.88**

Dimensions, Inches: F, $1\frac{7}{32}$; G, 2½.

3000 Pound Series for Insulators with 1⅜ Inch Pin Hole

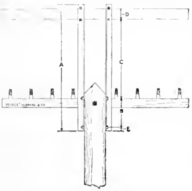
5145	4	2	1	2½	227	**88.22**
5147	5	2	1	2½	253	**100.76**
5149	5½	2	1	2½	287	**112.36**
5151	6	2	1	2½	313	**118.46**
5153	7	2	1	3	336	**132.78**
5155	8	2	1	3	401	**146.36**
5157	9	2	1	3	466	**160.66**
5159	10	2	1	3	531	**178.38**
5161	11	2	1	3½	693	**204.24**
5163	12	2	1	3½	746	**217.90**
5165	13	2	1	3½	800	**238.98**
5167	14	2	1	3¾	850	**256.00**
5169	15	2	1	3¾	935	**273.98**
5171	16	2	1	3¾	1020	**298.90**

Dimensions, Inches: F, $1\frac{7}{32}$; G, 2½.

4,500 pound series with thimbles for cementing into insulators with 1½ inch pin holes. Prices on request.

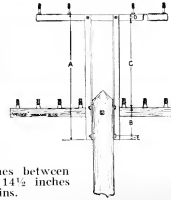
PEIRCE POLE EXTENSIONS

FOR CARRYING ELECTRIC WIRES ON TELEPHONE POLES



No. 2375

Designed to support electric light company's wircs 42 inehes above the telephone wires on the first cross arm when the upper through bolt of the extension is located at the top of the telephone arm, as illustrated.

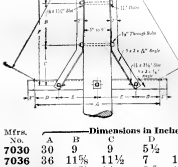


No. 2376

The No. 2376 extension consists of two 3x 3x¼ inch angle steel legs and a cross arm of the same material, with four Peirce No. 86 pins spaced according to the National Electric Light Association specification, 30 inches between pole pins and 14½ inches between side pins.

Angles Only

Mfrs. No.	Dimensions In Inches A	B	C	D	E	Wt.Lb. Each	Price Each
2375	70	24	37¾	4¼	2	57	**$6.20**
			Complete Extensions				
2376	68	24	39	3	2	87	**10.20**



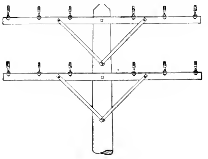
These pole top fixtures are designed primarly for lines without an overhead ground wire, although offset bayonets for supporting a ground wire can be furnished when desired.

Mfrs. No.	Dimensions in Inches A	B	C	D	E	F	Wt.Lb. Each	Price Each
7030	30	9	9	5½	9	27½	34	**$5.45**
7036	36	11⅝	11½	7	11	32⅝	40	**6.35**
7042	42	14⅜	14	8 7/16	12 9/16	37⅞	56	**7.05**
7048	48	17 1/16	16½	10	14	43 1/16	72	**8.62**
7052	52	19	18	10⅞	15⅛	53½	88	**8.07**
7060	60	22½	21½	12⅞	17⅛	63⅞	96	**9.22**
7072	72	27⅞	26½	15¾	20¼	......	112	**10.80**

Through bolts, cross arm straps and washers, required for attaching fixtures to poles, arc not included in prices.

HUBBARD STEEL CROSS ARMS

ANGLE STEEL—Hot Galvanized



Angle Steel

Especially constructed for high tension lines, heavy power•lines, railroad crossings, etc., where the hazard is great and wood arms not deemed dependable owing to their varying in strength. Uniform in strength and protected by hot dip galvanizing. Unless otherwise specified, holes will be the following sizes: 11/16 inch for through bolts, 7/16 inch for brace bolts and 13/16 inch for pins.

The power transmission arms listed are designed to permit the construction of single circuit lines of 24 and 76 inch spacings and of double circuit lines of 24 to 36 inch opening. Sizes listed below are the most called for in the angle type. Hot galvanized or plain. Prices will be furnished on application on special arms.

Telephone Arms

With holes for ¾ inch steel pins, 11/16 inch through bolts and 7/16 inch brace bolts, unless otherwise specified.

Mfrs. No.	No. of Pins	Lgth. In.	Pin Spac. Inches Pole	Side	Size Angle Inches	Wt.Lb. Each	Price Each
7602	2	20	16	....	3 x2 x3/16	5¼	**$0.77**
7604	4	40	16	10	3 x2 x3/16	10¼	**1.50**
7606	6	60	16	10	3 x3 x¼	24½	**2.10**
7608	8	80	16	10	3 x3 x¼	32¾	**4.40**
7610	10	100	16	10	3 x3 x¼	41	**5.42**

Electric Light Arms, N. E. L. A. Pin Spacings

With holes for ¾ inch steel pins, ⅝ inch through bolts and ⅜ inch brace bolts, unless otherwise specified.

Mfrs. No.	No. of Pins	Lgth. In.	Pin Spac. Inches Pole	Side	Size Angle Inches	Wt.Lb. Each	Price Each
***7612**	2	36	30	....	3 x3 x¼	14¾	**$2.04**
***7614**	4	65	30	14½	3 x3 x¼	26½	**3.56**
***7616**	6	94	30	14½	3½x3½x3/16	56½	**7.34**
***7618**	8	117¾	30	13⅝	3½x3½x3/16	70⅔	**8.44**

Power Transmission Arms

With holes for ¾ inch steel pins, ⅝ inch through bolts and ⅜ inch brace bolts, unless otherwise specified.

Mfrs. No.	No. of Pins	Lgth. In.	Pin Spac. Inches Pole	Side	Size Angle Inches	Wt.Lb. Each	Price Each
7622	2	28	24	....	3 x3 x¼	11⅔	**$1.64**
7632	2	40	36	....	3 x3 x¼	16⅔	**2.34**
7642	2	52	48	....	3 x3 x¼	21⅞	**3.04**
***7672**	2	76	72	....	3½x3½x3/16	45½	**5.92**
7624	4	76	24	24	3 x3 x¼	31⅔	**4.24**
***7634**	4	112	36	36	3½x3½x3/16	67	**8.74**

*N. E. L. A. Standard pin spacing.

PEIRCE FIRE ALARM FIXTURES

Three Wire Assembly

Six Wire Assembly

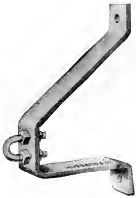
Combination fixtures for carrying signal wires on electric light, telephone or other foreign poles. Any number of wires, from one to six, can be correctly spaced on the various brackets which are bolted to the angle legs. Legs are of 1¾x1¾x⅛ inch angle steel and the insulator brackets of 1x½ x⅛ inch channel steel. Bolts furnished for fastening parts together, but not the ½ inch through bolts, for which 9/16 inch holes are provided in the legs. Hot galvanized. Wires larger than No. 8 weatherproof should not be carried on these fixtures. For heavier work special designs will be made on request.

Mfrs. No.	Description	Wt. Lbs. Per 100	Price Per 100
2590	One Point Bracket	75	**$28.46**
2591	Two Point Bracket	200	**90.02**
2592	Pair Angle Legs	1200	**369.18**
2593	Two Point Arms	200	**96.02**
2594	Four Point Arms	390	**216.08**

Instructions for Ordering

Assembly Wanted	Order the Following Numbers — Legs	Bracket	Arm
Two-Wire	2592	2591	--------
Three-Wire	2592	2590	2593
Four-Wire	2592	2591	2593
Five-Wire	2592	2590	2594
Six-Wire	2592	2591	2594

HUBBARD CORNER CONSTRUCTION BRACKETS



Used with metal cap suspension type insulators at angles or corners in lines using either suspension or pin type insulators on tangents. Two through bolts fasten the bracket on the side of the pole toward the "pull" and the string of insulators is attached to a ⅝ inch U-bolt. Brackets are placed one above another; one bracket and one string of insulators are required for each line wire. Bracket made of ⅜x2 inch flat steel and extends 8 inches from the pole with a bolt spacing of 14⅛ inches. Hot galvanized.

Mfrs. No.	Wt. Lbs. Per 100	Price Per 100
6725	700	**$165.58**

HUBBARD GROUND WIRE BAYONETS

STRAIGHT AND CORNER

Most secure and economical means of supporting the overhead ground wire on wood or steel poles. All bayonets have two 11/16 inch holes for ⅝ inch through bolts, upper ends have two 9/16 inch holes which allow the use of the Belcher or rolled steel ground wire clamps. Spacing between through bolt holes is 10 inches for the 36 inch, 12 inches for the 48 inch, 15 inches for the 66 inch and 20 inches for the 84 inch bayonets. Fastens to the back of the pole by the upper cross arm bolt and a lag screw or a second through bolt. Corner bayonets are for use at all points at which double arms are required. Consists of two angles, one bent and one straight, fastened together by two ½ inch machine bolts. Angle is bent for one 8 inch pole top, but may be spread to fit any size pole witho t interfering with the security of the bolted connection, upon which depends the strength of the bayonet. Through bolt holes in the bent leg of the bayonet are slotted 11/16 inch wide by 1½ inches long, to allow for any inaccuracy in boring bolt holes in the poles. Made of open hearth steel angle, hot galvanized or plain.

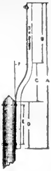
Straight Bayonets

Mfrs. No.	Lgth. In.	Size Angle In.	Wt. Lbs. Per 100	Price Per 100
6436	36	2 x2 x¼	1000	**$128.10**
6448	48	2½x2½x¼	1640	**199.56**
6466	66	2½x2½x¼	2255	**274.40**
6484	84	3 x3 x¼	3430	**417.40**

Corner Bayonets

Mfrs. No.	Lgth. In.	Size Angle In.	Wt. Lbs. Per 100	Price Per 100
6536	36	2 x2 x3/16	1370	**192.14**
6548	48	**2 x2 x3/16**	1825	**289.44**
6566	66	**2 x2 x¼**	3350	**500.20**
6584	84	**2½x2½x¼**	5500	**671.00**

OFFSET



Used when an overhead ground wire is installed on a single circuit transmission line, employing pole top pin or ridge iron construction. Generally restricted to the installation of ground wires on existing circuits. Bayonets listed are suitable for use on lines of 24, 36 and 52 inch conductor spacing, respectively, and have two 11/16 inch holes for ⅝ inch through bolts, the upper ends having two 9/16 inch holes for ground wire clamps. Hot galvanized or plain.

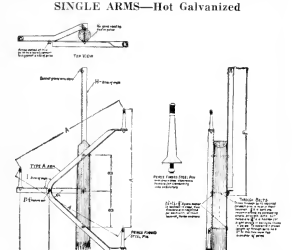
Mfrs. No.	Dimensions, Inches — A	B	C	D	E	F
6420	54	23½	12	18½	15	8
6421	72	37½	14	20½	17	10
6422	81	39⅝	15⅞	25½	22	12

Mfrs. No.	Size Angle In.	Wt. Lbs. Per 100	Price Per 100
6420	2½x2½x¼	1850	**$225.12**
6421	2½x2½x¼	2500	**304.20**
6422	3 x3 x¼	3310	**402.80**

Note—Wire clamps are not included in list prices. Bayonets equipped with Peirce 1 inch steel spring steel threads, add **$20.00** to list prices.

HUBBARD BO-ARROW ARMING SETS

SINGLE ARMS—Hot Galvanized



The 24 and 30 inch single arming sets are made of 2½x2½x¼ inch open hearth steel angle, the larger arms of 3x3x¼ inch angle. Through bolts are not included in prices. General dimensions are as follows:

Size In.	A	B	C	D	E	F	G	H	I
24	24	7⅞	4½	8	8½	32	4	2 x2 x¼	2½x2½x¼
30	30	9⅛	7	8	11	40	5	2 x2 x¼	2½x2½x¼
36	36	12⅛	6	12	13½	50	8	2½x2½x¼	3 x3 x¼
42	42	13½	8	13	16	58	8½	2½x2½x¼	3 x3 x¼
52	52	15⅞	10	15	20	66	9	2½x2½x¼	3 x3 x¼
72	72	21⅛	18	20½	24	75	10½	3 x3 x¼	3½x3½x⅝

TYPE A SINGLE ARM

Consists of one bow, one arrow and one ¾x1½ inch machine bolt for fastening bow and arrow together. Type A—For forged steel pins. Type B—For clamp pins furnished when specified.

Mfrs. No.	Wire Spacing, In.	Wt. Lbs. Each	Price Each
6024	24	21	**$3.32**
6030	30	25	**3.82**
6036	36	39	**5.16**
6042	42	45	**6.92**
6052	52	52	**8.64**
6072	72	69	**13.06**

CORNER BAYONETS

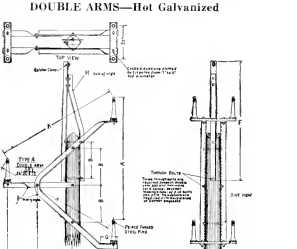
Two extra through bolts are required for attaching to a pole. Consists of one straight piece, and one bent piece of angle steel, and two ½x2 inch machine bolts for fastening them together.

Mfrs. No.	Wire Spacing, In.	Lgth. In.	Wt. Lbs. Each	Price Each
6232	24	32	13	**$1.82**
6240	30	40	16	**2.42**
6250	36	50	26	**3.30**
6258	42	58	35	**4.34**
6266	52	66	44	**5.38**
6275	72	75	50	**6.46**

Note—Above prices cover bayonets punched for attaching any Belcher or rolled steel ground wire clamped. For bayonets with Peirce steel spring insulator threads, 1 inch diameter, in place of clamps, **$0.20** each to list price. Both straight and corner bayonets have ⅞ inch holes and slots for ⅝ inch through bolts.

HUBBARD BO-ARROW ARMING SETS

DOUBLE ARMS—Hot Galvanized



The 24 and 30 inch double arming sets are made of 2½x2½x¼ inch open hearth steel angle, the larger arms of 3x3x¼ inch angle. Through bolts are not included in prices. General dimensions are as follows:

Size In.	A	B	C	D	E	F	G	H	I
24	24	7⅞	4½	8	8½	32	4	2 x2 x⅜	2½x2½x¼
30	30	9⅛	7	8	11	40	5	2 x2 x⅜	2½x2½x¼
36	36	12⅛	6	12	13½	50	8	2 x2 x¼	3 x3 x¼
42	42	13½	8	13	16	58	8½	2½x2½x¼	3 x3 x¼
52	52	15⅞	10	15	20	66	9	2½x2½x¼	3 x3 x¼
72	72	21⅛	18	20½	24	75	10½	2½x2½x¼	3½x3½x⅝

TYPE A DOUBLE ARM

Adjustable for poles from 7 to 11 inches in top diameter. Consist of right and left hand bow, right and left hand straight arrow, three cross pieces of angle or channel steel, depending on whether forged steel or clamp pins are used, two bolts for fastening bows and arrows together and six bolts for clamping the cross pieces to the arms. Cross pieces are necessary to give sufficient clearance between the two large high voltage insulation required on each line wire but are not needed on the 24 and 30 inch arms, which are furnished without these bolts. Type A—For forged steel pins. Type B—For clamp pins furnished when specified.

Mfrs. No.	Wire Spacing, In.	Wt. Lbs. Each	Price Each
6224	24	43	**$6.92**
6230	30	51	**7.84**
6236	36	113	**15.10**
6242	42	126	**16.79**
6252	52	139	**18.48**
6272	72	173	**21.82**

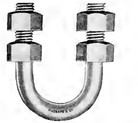
STRAIGHT BAYONETS

No additional bolts required for attaching the straight bayonet to a pole, the upper and middle cross arm bolts serving this purpose.

Mfrs. No.	Wire Spacing, In.	Lgth. In.	Wt. Lbs. Each	Price Each
6032	24	32	8½	**$1.18**
6040	30	40	10¾	**1.56**
6050	36	50	17	**1.84**
6058	42	58	20	**2.25**
6066	52	66	22½	**2.66**
6075	72	75	31	**3.60**

HUBBARD U BOLTS

Hot Galvanized



Type A

Mfrs. No.	Size In.	No. and Kind of Nuts	Price Per 100
6791	2 x1½	2 Hex.	**$9.75**
6792	3 x1¾	4 Hex.	**23.00**
9794	3 9/16x3	4 Sq.	**41.00**
6795	4½x3	4 Hex.	**45.00**
	Type B		
6797	3 15/16x1 27/32	2 Hex.	**55.00**

HUBBARD LINKS—Hot Galvanized

Mfrs. No	Size In.	Wt.Lbs. Per 100	Price Per 100
6781	1½x 9/16	18	**$9.00**
6782	2 1/16x 9/16	21	**10.50**
6783	2⅜x ⅞	39	**19.50**
6784	3¾x1	99	**50.00**

HUBBARD DROP FORGED EYES

Hot Galvanized

Designed to fit suspension insulator hardware for ball and soeket type.

Mfrs. No.	Size of Stock	Wt.Lbs. Per 100	Price Per 100
6785	⅝	50	**$25.00**

Drop forged eyes are ⅞x1⅛ inches, inside; the sides are round over all.

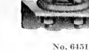
Mfrs. No.	Size of Stock	Eye Spacing	Width of Eye	Length of Eye	Wt.Lb. Per 100	Price Per 100
6789	½	3⅜	⅞	1⅛	50	**$36.00**
			Twist Eye			
6790	½	3⅜	⅞	1⅛	50	**66.40**

HUBBARD BELCHER GROUND WIRE CLAMPS

Hot Galvanized

No. 6450

These clamps will hold any size of wire from No. 8 solid to 7/16 inch stranded. A soft copper sleeve should be wrapped around copper and eopper clad steel wires to cover points of contact with the galvanized metal of the clamp.



No. 6451

Mfrs. No	Style	Wt Lbs. Per 100	Price Per 100
6450	J	44	**$21.00**
6451	U	44	**46.00**

FOR BAYONETS—Roll Steel—Hot Galvanized

Rigid Type

Flexible Type

Designed for bayonets and has long clamping surface. Groove ends are flared out to prevent cutting the strand and leaves the clamping surfaee perfeetly smooth. Supplied with the necessary ½ inch bolts. Hot galvanized.

Mfrs. No		Length In.	Wt.Lbs. Per 100	Price Per 100
6455	Rigid	2½	120	**$23.00**
6456..	Flexible	5¾	275	**121.26**

HUBBARD INSULATOR HOOK BOLTS

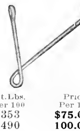
Hot Galvanized

SUSPENSION

Used for supporting strings of suspension type insulators from cross arms. Drop forged and made in three lengths above the shoulder, 1½ inches for angle steel arms, 6 inches for wood arms up to 4 x 5 inches, and 9 inehes for the double ehannel cross arms used on steel towers. Hot galvanized.

Mfrs. No.	Length Shank, In.	Wt.Lbs. Per 100	Price Per 100
6751½	1½	130	**$39.00**
6756	6	190	**57.00**
6759	9	225	**67.50**

HUBBARD CORNER CONSTRUCTION BRACKETS



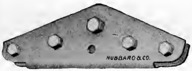
Used on lines equipped with suspension type insulators to give the desired clearness to the line wire on small angles. Hot galvanized.

Mfrs. No.	Size In.	Spacing of Eyes	Extension	Wt.Lbs. Per 100	Price Per 100
6727	⅝	12	12	353	**$75.00**
6728	¾	12	12	490	**100.00**

J BOLTS

Mfrs. No.	*Lth. In.	Dth. of Cross Arm	Wt. Lb. Per 100	Price Per 100	Mfrs. No.	*Lth. In.	Dth. of Cross Arm	Wt. Lb. Per 100	Price Per 100
6734	6¾	4	125	**$37.50**	**6735**	7¾	5	147	**$43.10**
6734½	7¼	4½	141	**42.30**	**6736**	8¾	6	160	**48.00**

HUBBARD-BELCHER SUSPENSION INSULATOR EQUIPMENT



STRAIN YOKE

In dead ending long spans of heavy wire in transmission line construction as is often neeessary at railroad crossings. Supports the two strings of insulators 13 inches apart on centers, which is the standard for 10 inch discs. Formed of steel plate ¼ ineh thiek, hot pressed to shape and hot galvanized. Each yoke is furnished with three bolts and hole for discharge from bolt.

Mfrs. No.	Wt Lbs. Per 100 Pairs	Price Per 100 Pairs
6770	1930	**$866.58**

DISCHARGE HORNS

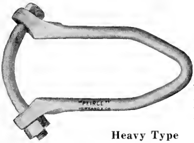
Hot Galvanized

Holds the arc away from the insulator in case of an insulator flashover, preventing its heat from cracking the porcelain. Made of 2x¼ ineh flat steel. Furnished in pairs, a pair including one right and one left hand horn, together with necessary bolts for attaching them to the strain yokes. Hot galvanized.

Mfrs. No	Wt Lbs. Per 100 Pairs	Price Per 100 Pairs
6780	440	**$105.98**

PEIRCE DROP FORGED CLEVISES

Hot Galvanized



Peirce strain insulator clevises are drop forged from ½ inch round open hearth steel. They are equipped with ½ inch curved bolts fitting with hexagon nuts.

Heavy Type

Mfrs. No.	Dimen. In.	Wt.Lbs. Per 100	Price Per 100 Pieces	Mfrs. No.	Dimen. In.	Wt.Lbs. Per 100	Price Per 100 Pieces
530	2½x2	135	**$55.14**	**533**	5¼x2¼	145	**$55.14**
531	3¾x1½	140	**55.14**	**534**	4½x2½	145	**55.14**
532	3¼x2¼	140	**55.14**	**535**	4¾x2¼	145	**55.14**

Light Type

Mfrs. No.	Dimen. In.	Wt.Lbs. Per 100	Price Per 100 Pieces	Mfrs. No.	Dimen. In.	Wt.Lbs. Per 100	Price Per 100 Pieces
570	2½x1⅞	62	**32.00**	**573**	5¼x2⅛	87	**36.00**
571	3¾x1⅜	69	**34.00**	**574**	4½x2⅜	83	**36.00**
572	3½x2⅛	67	**34.00**	**575**	4¾x2⅛	84	**36.00**

DEAD ENDING CLEVISES

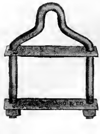
Hot Galvanized

Designed to anchor a metal cap strain insulator with any one of the three types of connections, eye, clevis or hook, on the end of a bolt through the side cf a cross arm or building.

Mfrs. No.	Wt.Lbs. Per 100	Price Per 100
555	110	**$51.02**

PEIRCE CLEVISES

CROSS ARM—Hot Galvanized



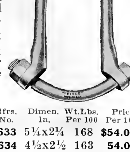
For dead ending line wires on wood cross arms.

Mfrs. No.	Size Arm In.	Wt.Lbs. Per 100	Price Per 100
549	3¼x4¼	134	**$56.70**
550	3½x4½	138	**58.18**
551	3¾x4¾	144	**59.56**
552	4 x5	150	**60.02**

HUBBARD DROP FORGED STRAIN INSULATOR CLEVISES

EYE TYPE—Hot Galvanized

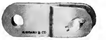
The eye type clevis is similar in all respects to the standard type except that an eye is drop forged in the crotch of the clevis and is provided with an $\frac{11}{16}$ inch hole so that it may be used on the head or nut end of a through bolt or the nut end of a double arming or eye bolt.



Mfrs. No.	Dimen. In.	Wt.Lbs. Per 100	Price Per 100	Mfrs. No.	Dimen. In.	Wt.Lbs. Per 100	Price Per 100
630	2½x2	131	**$54.00**	**633**	5¼x2¼	168	**$54.00**
631	3¾x1½	144	**54.00**	**634**	4½x2½	163	**54.00**
632	3¼x2¼	137	**54.00**	**635**	4¾x2¼	155	**54.00**

HUBBARD CONNECTING LINKS

Hot Galvanized



No. 6786

These connecting links are made of rolled steel, shaped and riveted together in such a manner as to provide a clevis on one end and an eye on the other. Links are furnished complete with one ½ inch clevis bolt and brass cotter. Sizes not listed can be furnished when specified.

Mfrs. No.	Dimensions, Inches: Size of Sotck	Diam. Holes: Eye End	Diam. Holes: Clv. End	Opg. in Clevis	Wt.Lbs. Per 100	Price Per 100
6786	½x1½	¾	¾	$\frac{9}{16}$	169	**$75.00**
6787	⅝x1¾	$\frac{13}{16}$	$\frac{9}{16}$	⅝	503	**125.00**

HUBBARD CLEVIS BOLT

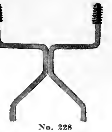
Hot Galvanized

Mfrs. No.	Dimensions, Inches: Length Bolt	Length Threads	Diam. Hole	Size Bolt	Wt.Lbs. Per 100	Price Per 100
6805	5	4½	½	⅝	125	**$35.00**
6809	9	6	½	⅝	162	**45.00**
6814	14	6	½	⅝	195	**59.00**
6825	5	4½	⅝	¾	161	**48.00**
6829	9	6	⅝	¾	225	**68.00**
6834	14	6	⅝	¾	305	**95.00**

PEIRCE RIDGE IRON BRACKETS

Hot Galvanized

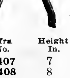
No. 118



No. 228

Convenient for carrying foreign wires on pole tops. Made of open hearth steel channels. Points are 4½ inches high with spring threads for 1 inch bore insulators. Four screw holes.

Mfrs. No.	Steel In.	Spacing In.	Pole In.	Hole In.	Wt., Lbs. Per 100	Price Per 100
118	¾x⅜	0	6¾	$\frac{7}{16}$	108	**$59.60**
228	1 x½	10	6¾	$\frac{9}{16}$	300	**115.74**
338	1½x$\frac{9}{16}$	10	7	$\frac{9}{16}$	700	**224.20**



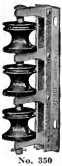
HUBBARD RIDGE IRONS

Hot galvanized. Fastened to pole by four ½ inch lag screws.

Mfrs. No.	Height In.	Pole In.	Hole In.	Wt., Lbs. Per 100	Price Per 100
9407	7	6	$\frac{9}{16}$	135	**$36.28**
9408	8	7	$\frac{13}{16}$	285	**47.08**
9410	18½	7	$\frac{13}{16}$	888	**90.00**

PEIRCE SECONDARY RACKS

STANDARD TYPE—Hot Galvanized


No. 350

Replace secondary cross arms. Wires are strung in vertical alignment, permitting taking off service wires without aid of buck arms or spreader brackets.

Mfrs. No.	No. of Line Wires	Overall Lgth. In.	With Insulators Wt. Lb. Per 100	With Insulators Price Per 100
250	2	9½	560	**$175.66**
350	3	13½	800	**247.86**
450	4	17½	1020	**313.56**
540	5	21½	1240	**379.26**
258	2	13½	700	**225.66**
358	3	21½	1040	**334.86**

Nos. 250, 350, 450, 540, 4 inch spacing; Nos. 258, 358, 8 inch spacing.

PEIRCE PRESTEEL SECONDARY RACKS

HEAVY TYPE—Hot Galvanized

The heavy presteel racks are of sufficient weight and strength for general secondary work.

Both styles of racks are intended for use as line racks. The Nos. 1278 and 1378 may be used in connection with Peirce rack bands for attaching the racks to tubular steel poles.

No. 278

Mfrs. No.	No. of Points	Spac. In.	Wt. Lb. Per 100	Price Per 100
		With Straps		
278	2	8	675	**$216.60**
378	3	8	1012	**324.70**
		Without Straps		
1278	2	8	610	**193.02**
1378	3	8	915	**289.56**

PEIRCE PRESTEEL SECONDARY RACKS

LIGHT TYPE—Hot Galvanized

No. 276

These racks were designed for light secondary work.

Mfrs. No.	No. of Points	Spac. In.	Wt. Lb. Per 100	Price Per 100
		With Straps		
276	2	6	369	**$122.50**
376	3	6	554	**187.58**
		Without Straps		
1276	2	6	310	**104.76**
1376	3	6	465	**157.12**
2768	2	8	390	**133.76**
3768	3	8	595	**204.26**

HEAVY TYPE—Hot Galvanized

Horizontal Type

These racks with insulators mounted in a horizontal position are used for heavy cable work. The porcelain insulator acts as a roller in stringing the cable. The weight of cable rests in the groove of insulator without depending on a tie wire for support.

Mfrs. No.	No. Line Wires	Wire Spacing	Overall Lgth. In.	Price Per 100
260	2	4¾	18¾	**$214.32**
268	2	9½	23¼	**265.20**
360	3	4¾	23½	**284.38**
368	3	9½	33	**388.64**
460	4	4¾	28¼	**362.12**
560	5	4¾	33	**417.52**

PEIRCE SECONDARY RACKS

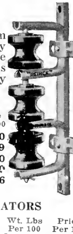
EXTENDED BACK TYPE—Hot Galvanized

Extended back secondary racks are similar in all respects to the standard rack except that the angles forming the back are extended to accommodate through bolts for attaching the rack. Furnished with No. 355 single groove insulator. No. 356 double groove insulator can be furnished when desired.

Mfrs. No.	No. of Line Wires	Wire Spac.	Overall Lgth. In.	Wt. Lb. Per 100	Price Per 100
1250	2	4	13 9/16	615	**$194.86**
1258	2	8	17 9/16	755	**245.60**
1350	3	4	17 9/16	855	**267.80**
1358	3	8	25 9/16	1095	**354.80**
1450	4	4	21 9/16	1075	**333.50**
1540	5	4	25 9/16	1295	**399.20**

PEIRCE PRESTEEL HOUSE RACKS

Hot Galvanized



The presteel rack is a lighter form of the No. 350 Peirce secondary rack. It is designed to carry service wires on buildings, work which does not require the strength of the heavy rack.

Mfrs. No.	No. of Line Wires	Wire Spac. In.	Overall Lgth. In.	Wt. Lb. Per 100	Price Per 100
183	1	0	6⅜	150	**$52.80**
286	2	6	12⅜	300	**118.09**
383	3	3	12⅜	356	**138.70**
386	3	6	18⅜	448	**174.20**
583	5	3	18⅜	548	**226.86**

SECONDARY RACK INSULATORS

No. 355

No. 356

Mfrs. No.	Type	Wt. Lbs Per 100	Price Per 100
355	Standard	100	**$26.98**
356	Special	115	**29.64**

Standard has one large groove; will take six No. 0 wires. Special, two grooves, one for tying-in main circuit, other for wires.

PEIRCE EXTENSION BRACKETS

By addition of a pair of brackets the standard secondary racks may be converted from a 4 to 10 inch extension.

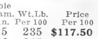
Mfrs. No.	Type	Wt. Lb. 100 Pairs	Price Per 100 Pairs
3355	Curved	430	**$156.08**
3356	Flat	430	**156.08**

PEIRCE DEAD-ENDING STRAPS

Suitable for use with all Peirce secondary racks.

Mfrs. No.	Type	Size Steel	Wt. Lb. Per 100	Price Per 100
999	Light	14 Ga. x 1¼	60	**$22.50**
1000	Heavy	¼ x 1¼	100	**25.00**

PEIRCE POLE BANDS



Used for attaching all styles of Peirce secondary racks to tubular steel poles.

Mfrs. No.	Pole Diam. In.	Wt. Lb. Per 100	Price Per 100	Mfrs. No.	Pole Diam. In.	Wt. Lb. Per 100	Price Per 100
			Single Type				
7364	4	205	**$112.50**	**7365**	5	235	**$117.50**
7364½	4½	220	**115.00**	**7366**	6	245	**122.50**
			Double Type				
7374	4	255	**125.00**	**7375**	5	275	**132.50**
7374½	4½	260	**130.00**	**7376**	6	295	**137.50**

PEIRCE WIRE HOLDERS

Nos. 394-396

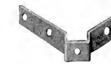
Nos. 296-299

No. 190

No. 191

No. 191A

No. 1602



No. 501

Wireholders come complete assembled with insulators, packed in wooden boxes, with insulators protected by corrugated fibre sleeves. Insulators used with the wireholders are electrically correct. They drain readily in all positions, have a wet arc-over voltage of 1900 volts.

Mfrs. No.	No. of Wires	Spacing Inch	Std. Pkg.	Wt. Lb. Per 100	Price Per 100
190	1	0	50	78	**$35.00**
191	1	0	50	96	**38.76**
190A	1	0	25	85	**38.76**
296	2	6	25	202	**77.50**
299	2	9	25	221	**82.50**
394	3	4½	25	293	**111.26**
396	3	6	25	275	**123.76**
494	4	4½	25	334	**145.76**
1602	0	0	100	36	**17.36**
501	0	0	25	20	**19.80**
		Pressed Broad Back Type			
2191	1	0	50	180	**72.50**
2296	2	6	25	216	**90.00**
2299	2	9	25	245	**93.75**
2394	3	4½	25	275	**110.00**
2396	3	6	25	290	**116.00**
2494	4	4½	25	310	**124.00**

PEIRCE HEAVY WIREHOLDERS

Hot Galvanized

No. 1190

The heavy type wireholder is intended for use with duplex, triplex or single twisted wires for making house service connections. Especially adapted for heavy, long span work.

Mfrs. No.	No of Wires	Wire Spac.	Std. Pkg.	Wt. Lb. Per 100	Price Per 100
1190	1	0	50	155	**$77.98**
1191	1	0	50	180	**72.50**
1296	2	6	25	216	**90.00**
1299	2	9	25	245	**93.75**
1396	3	6	25	275	**110.00**

PEIRCE DISTRIBUTING KNOB RACKS

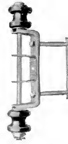
VERTICAL—CHANNEL

With 1¾ inch channel back and pressed steel eyes. Also heavy type with curved malleable iron pole pieces. One or two rows of knobs.

Mfrs. No.	No. of Knobs	Wt. Lbs. Per 100	Price Per 100
2900	4	225	**$132.34**
2901	6	300	**174.64**
2902	8	475	**217.12**

PEIRCE INSULATED SPREADER RACKS

LIGHT TYPE—Hot Galvanized



The spreader racks illustrated are made with a 1 inch channel back, ½ inch insulator through bolt and is adjustable to cross arms 3¾x4¾ inches and smaller. No. 1606 insulator included.

Mfrs. No.	Chan. In.	Spac. In.	Std. Pkg.	Wt. Lb. Per 100	Price Per 100
263	1	10½	25	400	**$156.25**
363	1	5¼	25	420	**170.16**
364	1	6–8⅜	25	600	**210.58**

PEIRCE SWINGING KNOB FIXTURES

SISTER HOOK TYPE
Hot Galvanized

The sister hook feature permits removal of insulator for driving screw. The ⅜x4 inch gimlet point lag screw is trapped in the eye in such a manner as to be positively locked against turning. Either bracket is sufficiently heavy for general secondary service connections.

Mfrs. No	With Ins. No.	Exten. In	Std. Pkg.	Wt. Lb. Per 100	Price Per 100
2928	1606	4½	100	165	**$72.50**
2929	355	5	75	250	**101.08**

PEIRCE LIGHT HOUSE RACKS

Hot Galvanized

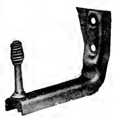
These racks, while not as strong as the Presteel racks, are in popular use for light service connections. Frame is made of 1 inch channel, to which are riveted two straps 4⅛ inches wide and provided with $\frac{5}{16}$x1⅛ inch mounting holes. No. 1606 insulators are attached to frame by ½ inch through bolt.

Mfrs. No.	Line Wires	Spacing Inches	Exten. Inches	Std. Bundle	Wt. Lb. Per 100	Price Per 100
1285	2	10½	2¼	25	328	**$128.92**
1385	3	5¼	2¼	25	425	**149.96**

PEIRCE SINGLE POLE BRACKETS

Hot Galvanized

No. 109


No. 142

No. 144

No. 152

Made of pressed steel hot galvanized. No. 109 is used for supporting electric railway feed wires on poles. No. 144 is used for telephone circuits on transmission line poles. Nos. 142 and 152 have greater extensions from the pole and are suitable for lines of higher voltages.

Mfrs. No.	Steel, In.	Exten., In.	Hole, In.	Std. Bundle	Wt. Lbs. Per 100	Price Per 100
109	1¾	6	$\frac{9}{16}$	10	302	**$176.64**
142	9Ga	12	$\frac{9}{16}$	10	365	**180.06**
144	1	2½	$\frac{7}{16}$	25	85	**39.88**
152	1½	5	$\frac{11}{16}$	20	144	**69.40**

PEIRCE POLE BRACKETS

Hot Galvanized

CHANNEL STEEL

No. 308

No. 321

A rugged, heavy type bracket extensively used in place of a secondary rack, for low voltage circuits of light wire. Made of hot-rolled, open hearth channel steel; hot galvanized. Spiral spring threads on bracket arms permit firm seating of insulators with slight imperfections in thread, also eliminate breakage of insulators due to temperature rises. All points extend 3¾ inches. Standard bundle, 20 brackets.

Mfrs. No.	No. of Points	Spacing, In.	Holes, In.	Wt. Lbs. Per 100	Price Per 100
208	2	6½	$\frac{7}{16}$	230	**$108.62**
308	3	6½	$\frac{7}{16}$	330	**162.06**
321	3	6½–9	$\frac{11}{32}$	265	**120.04**

PEIRCE SUSPENSION TELEPHONE BRACKETS

Hot Galvanized

For Steel Tower Lines

Used on steel tower transmission lines, where it is advisable to carry the telephone circuits on the towers instead of a separate pole line, and to decrease length of span and permit use of lighter wire. No. 220 is made of channel steel and clamps on $\frac{7}{16}$ inch or smaller messenger strand.

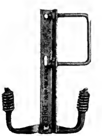
Mfrs. No.	Description	Wt. Lbs. Per 100	Price Per 100
220	Two Point	200	**$89.74**

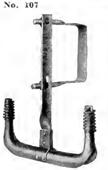
PEIRCE CROSS ARM BRACKETS

Hot Galvanized

No. 106

No. 107


No. 227


No. 230

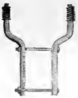
Bracket No. 230 is press steel and used for heavy work. No. 107 will support an extra wire at the end of a filled arm. No. 227 will support two wires at any point under the arm, or with the U-bolt in the other leg of the angle, will serve as a break arm or spreader bracket for light wires. No. 106 is a roof bracket.

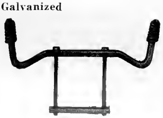
Mfrs. No.	Lgth. In.	Size, Holes, In.	Size Channel, In.	Spacing, In.	Std. Bundle	Wt. Lbs. Per 100	Price Per 100
106	5	$\frac{13}{32}$	1	....	25	112	**$35.38**
107	18	$\frac{7}{16}$	1	....	25	164	**82.66**
227	11½	$\frac{11}{16}$	¾	8	20	195	**124.02**
230	....	....	9 Ga.	10	10	300	**150.00**

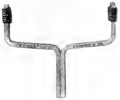
PEIRCE BREAK ARM BRACKETS

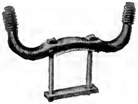
SERIES CIRCUITS

Hot Galvanized


No. 225


No. 223


No. 224


No. 231

Made of drop forged open hearth steel, except No. 231, which is of pressed steel. Furnished with steel spring threads. Adjustable for any size of arms, from 3¼x4¼ to 4x5 inches. Nos. 223 and 231 have ⅜ inch bolts; No. 225, ½ inch, and No. 224 fits in a 1½ inch pin hole.

Mfrs. No.	Steel, In.	Spacing, In.	Standard Bundle	Wt. Lbs. Per 100	Price Per 100
223	1	12	10	230	**$112.20**
224	1	12	20	240	**106.26**
225	7	8¼–10	10	230	**109.04**
231	9 Ga.	12	10	360	**234.08**

PEIRCE CROSS ARM BRACKETS

Hot Galvanized

TERMINAL BRACKETS

No. 103

No. 104

No. 105

Used for dead ending wires on cross arms and are attached by means of ⅜ inch carriage bolts through the sides of the arms. No. 103 is intended for telephone circuits only. No. 104 is used for running jumper wires from end to end under arms. No. 105 may be placed either above or below the arm.

Mfrs. No.	Size, Holes, In.	Size Channel, In.	Stand. Bundle	Wt. Lbs. Per 100	Price Per 100
103	7/16	1	25	85	**$44.06**
104	7/16	¾	25	85	**44.06**
105	13/32	1	10	180	**68.36**

SPREADER BRACKETS

No. 202

Are best means for taking off service connections where secondary wires are supported on cross arms. Made from hot rolled, open hearth steel; Spiral spring wire threads or bracket points eliminate insulator breakage due to temperature rises. Bases are composed of two 1 inch angles and are 2½ inches wide. All points extend 4½ inches.

Mfrs. No.	Spacing Inch	No. of Points	Std. Bundle	Wt. Lb. Per 100	Price Per 100
201	10	2	10	290	**$147.52**
202	12	2	10	375	**167.30**
301	6½	3	10	390	**209.58**
302	6½	3	10	450	**221.42**

No. 217

Of recent design and stronger than old type with channel points. Made of pressed steel. Cross arm straps are not included in list prices.

No. 317

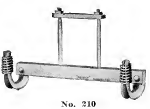
Mfrs. No.	Extension, In.	Std. Bundle	Wt. Lbs. Per 100	Price Per 100
217	13	10	320	**$162.38**
317	6½	10	460	**221.40**

PEIRCE DISTRIBUTING BRACKETS

Hot Galvanized

No. 200

No. 218


No. 210

No. 300

Used for taking off lamp or service connection of the smaller size of wire. No. 200 is convenient for carrying two wires vertically from arm to arm. Nos. 1116 and 2116 serve the same purpose and are clamped on the end of the arm by a cross arm strap. Cross arm strap for Nos. 1116 and 2116 brackets not included in list price.

Mfrs. No.	Size Steel In.	Spacing In.	Std. Bundle	Wt. Lbs. Per 100	Price Per 100
200	1 Channel	16	10	216	**$112.16**
210	1¼ Angle	13	10	300	**109.20**
218	9 Ga. Channel	10	10	300	**153.50**
300	1¼ Angle	6½	10	340	**130.66**

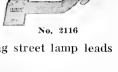
PEIRCE DISTRIBUTING BRACKETS

FOR CROSS ARMS

No. 131 bracket, used for running leads between arms such as is required for transformer pole wiring, is attached to end of cross arm by ⅜ inch carriage bolt and ¼ inch lag screw.

No. 1116

No. 1116 is also used for transformer pole wiring and is attached to the cross arm by Pierce drop forged cross arm straps, which are not included in the price.


No. 2116

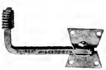
No. 2116 is used for running street lamp leads between arms to the fixture.

Mfrs. No.	Dimensions, Inches: Holes	Channel	Spacing	Std. Bdl.	Wt. Lb. Per 100	Price Per 100
131	7/16 and 9/32	1	0	25	79	**$47.50**
1116	17/32	1¼	0	10	140	**63.02**
2116	17/32	1½ and 1	8	10	240	**89.26**

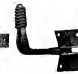
PEIRCE WALL BRACKETS

Hot Galvanized

SINGLE POINT TYPES—Spring Threads


No. 117

No. 147


No. 148

Brackets Nos. 149 and 117 are adjustable. Suitable for use on corners of buildings.

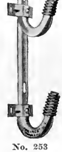
Mfrs. No.	Exten., In.	Dimen., Base	Size Channel, In.	Size Holes, In.	Std. Bdle.	Wt. Lbs. Per 100	Price Per 100
117	8	3¾ x4	1	13/32	15	155	**$90.02**
147	9	4 x2½	1	5/16 & 9/16	25	141	**70.82**
148	6	3¾ x4	1	13/32	15	140	**69.84**
146	4½	4 x2	1	5/16	25	100	**50.16**
145	3½	3 x2⅞	¾	5/16	25	56	**29.48**

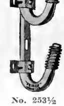
LIGHT TYPES

Pressed from sheet steel. Blank pieces from which parts are pressed are cut to a tapered shape so that greatest width of metal is at points subjected to greatest stress. Spiral spring thread on bracket point prevents breakage of insulators due to temperature rises.

No. 136

No. 153


No. 253


No. 253½

No. 353

Above light types are used extensively for supporting telephone wires on transmission line poles. Brackets Nos. 253 and 253½ have been adopted as standard by many large central station companies. All points extend 3¾ inches.

Mfrs. No	No. of Points	Spacing, In.	Holes, In.	Std. Bundle	Wt. Lbs. Per 100	Price Per 100
136	1	......	5/16	25	60	**$27.92**
153	1	......	11/32	25	75	**32.56**
253½	2	6½	11/32	20	175	**81.02**
253	2	9	11/32	20	188	**84.02**
353	3	6½	11/32	20	275	**123.04**

HEAVY TYPE

Similar appearance to light types, but of heavier construction. No. 137 bracket has a curved back to fit a pole, making it desirable for supporting single wires, such as series arc circuits, telephone and signal wires, etc. All points extend 4¼ inches.

Mfrs. No.	No. of Points	Spacing, In.	Holes, In.	Std. Bundle	Wt. Lbs. Per 100	Price Per 100
137	1	......	7/16	25	100	**$47.04**
138	1	......	7/16	25	100	**47.04**
154	1	......	13/32	25	100	**46.36**
254½	2	6½	11/32	20	235	**102.04**
254	2	9	11/32	20	244	**108.04**
354	3	6½	11/32	20	350	**150.02**

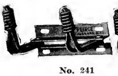
PEIRCE WALL BRACKETS

Made from hot rolled, open hearth Presteel and hot galvanized.

HORIZONTAL TYPE

No. 243

No. 343


No. 241

No. 341

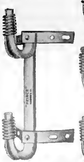
Nos. 243, 241, 341 and 343 are used for general lighting construction and for heavier service. Width of angle bases, three inches.

Mfrs. No.	Exten. In.	Size Hole, In.	Spacing In.	Std. Bundle	Wt.Lbs. Per 100	Price Per 100
243	3⅝	11/32	8	20	170	**$74.42**
343	3⅝	13/32	6	10	230	**105.04**
241	4	7/16	7	10	250	**114.04**
341	4	7/16	6½	10	460	**201.08**

CORNER TYPE

For stringing wires around corners of buildings. May be used for telephone or electric light work. Made of presteel, hot galvanized. Spring wire threads on bracket points.

No. 150


No. 242

No. 342

Mfrs. No.	Exten., In.	Holes, In.	Spacing In.	Std. Bundle	Wt. Lbs. Per 100	Price Per 100
150	3½	11/32	......	25	74	**$38.38**
242	3¾	11/32	9	20	186	**83.66**
342	3¾	11/32	6½	20	261	**123.92**

BRACKET FOOT AND CORNER IRONS

May be bolted to any vertical bracket to make it extend 8 inches from wall, or convert it into a corner bracket. Made of 1x⅜ inch hot galvanized steel. Holes 11/32 inch.

Mfrs. No.	Extension, Inches	Back, Inches	Standard Bundle	Wt. Lbs. Per 100	Price Per 100
500	4⅜	10 7/16	20	85	**$32.34**

PEIRCE WALL BRACKETS
Hot Galvanized

VERTICAL TYPE

No. 235-6

No. 203

No. 303

No. 207

Made of ¾ inch channel steel except No. 236, which is of one inch channel steel, but otherwise similar to Nos. 234 and 235.

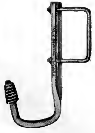
Mfrs. No.	No. of Points	Exten. In.	Spacing In.	Size Holes In.	Std. Bdle.	Wt. Lbs. Per 100	Price Per 100
235	2	3½	12	$\frac{11}{32}$	25	110	**$56.18**
236	2	3½	10	$\frac{11}{32}$	25	143	**59.02**
203	2	3¾	9	$\frac{11}{32}$	20	145	**71.26**
303	3	3¾	6½	$\frac{11}{32}$	20	250	**108.04**
207	2	4½	9	⅜	10	230	**114.62**
307	3	4½	6½	⅜	10	320	**157.86**

PEIRCE TRANSPOSITION BRACKETS

Brackets shown with U bolts are furnished with bolts bent for 3¼x4¼ inch arms, unless otherwise specified but can be equipped with bolts up to 4x5 inches at same price.

SINGLE POINT UNDERHANG

No. 110

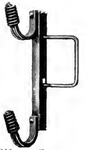

No. 111

No. 115

No. 110 is used for single wires, No. 111 for heavier work and No. 114 for two wire transposition insulators. No. 115 bolts to the shank of ½ inch steel pin below the arm and is held by the pin nut. Packed in standard bundles of 25 each.

Mfrs. No.	Channel In.	U-Bolt In.	Wt. Lbs. Per 100	Price Per 100
110	¾	$\frac{5}{16}$	88	**$61.50**
111	1	⅜	144	**81.02**
114	1	⅜	160	**92.24**
115	1	....	144	**68.26**

PEIRCE TRANSPOSITION BRACKETS
Hot Galvanized



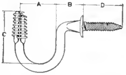
MULTIPOINT BRACKETS

No. 437 for transposing four wires of two toll circuits, on which phantom circuit is connected, No. 237 for two wires. ¾ inch U bolts can be furnished.

Mfrs No.	Gauge Steel	Back Inches	Std. Bdl.	Wt.Lb. Per 100	Price Per 100
237	12	1 x1 x⅛	20	215	**$89.78**
437	12	1¼x1¼x⅛	10	500	**207.08**

PEIRCE BRACKETS
Hot Galvanized

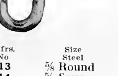
FORGED HOOK BRACKETS



Used for running secondaries on poles and for making service attachments on buildings. Furnished with either spring or lead threads for insulators having standard pin hole.

Mfrs. No.	Size Steel	Std. Pkg.	Wt.Lb. Per 100	Price Per 100
312	⅝	200	140	**$56.52**

PRUSSIAN HOOK BRACKETS



Extensively used for supporting wires on poles, trees and houses. Special hook brackets of any dimensions or equipped with wood cobs or notched for cementing into the insulator pin hole can be furnished when specified.

Mfrs. No	Size Steel	Std. Pkg.	Wt.Lb. Per 100	Price Per 100
313	⅝ Round	150	130	**$45.00**
314	⅝ Square	150	170	**47.60**
315	½ Square	150	105	**37.94**
316	½ Round	300	90	**32.00**

BRICK DRIVE BRACKETS
Forged—Hot Galvanized

For attaching secondaries to brick and stone buildings. These brackets are made of ⅝ inch round steel and extend from the building 3¼ inches.

Mfrs. No.	Size Steel	Extension	Driving Point	Hght. Inches	Wt.Lb. Per 100	Price Per 100
1312	⅝	3¼	3¾	3½	100	**$47.26**

PEIRCE TREE BRACKETS
Hot Galvanized

INSULATED

No. 2933 is attached to the tree by two ⅜ inch lag screws and is simplified to the extent that the removal of but one cotter bolt is required for stringing the wire.

No. 2934 has the sister hook arrangement and permits the removal of insulator for driving the screw and stringing wire without removing nuts, bolts or small parts. Standard No. 1606 insulators are furnished.

Mfrs. No.	Description	Std. Pkg.	Wt.Lb. Per 100	Price Per 100
2933	Rigid	75	115	**$87.50**
2934	Flexible	75	155	**140.90**

HUBBARD TRANSPOSITION BRACKETS

Hot Galvanized

STANDARD TYPES

The three kinds listed are similar to No. 9251. They are provided with ⅜ inch hole for 2 inch No. 14 galvanized wood screws. No. 9250 is Western Union standard and is made for a 3x4 inch cross arm. No. 9251 is A. T. & T. Co. standard for one wire. No. 9252 for two wires on a transposition insulator. All brackets have holes for ½ inch insulator pins. Pins and bolts not included in price.

Mfrs. No.	Steel Inches	Cross Arm Inches	Wt.Lb. Per 100	Price Per 100
9250	1¼x$\frac{5}{16}$	3 x4	230	**$51.70**
9251	1¼x$\frac{5}{16}$	3¼x4¼	242	**51.70**
9252	1½x⅜	3¼x4¼	368	**68.20**

FOR PHANTOM CIRCUITS

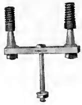
A. T. & T.—Western Union

For four wire transpositions. Fastened to cross arm by two ½x4¾ inch machine bolts, spaced 2⅜ inches apart. Has holes for ½ inch pins. Price includes the two parts shown, the smaller of which projects above the arm, but no bolts or pins. Made of 1½x⅜ inch steel.

Mfrs. No	Cross Arm Inches	Wt.Lb Per 100	Price Per 100
9275	3¼x4¼	693	**$128.40**

HUBBARD BREAK IRON BRACKET

Hot Galvanized



No. 9280 break iron bracket is Western Union standard and is furnished complete as illustrated. Standard ⅝ inch wood top pins are spaced on 6½ inch centers. The ½x6 inch machine bolt is equipped with clipped pin washer.

Mfrs. No.	Pin Spacing Inches	Wt.Lb. Per 100	Price Per 100
9280	6½	314	**$93.75**

HUBBARD TELEPHONE BRACKETS

L-House

For dead ending twist wires on buildings. Made of 1¾x$\frac{3}{16}$ inch steel with three $\frac{5}{16}$ inch holes. Hot galvanized.

Mfrs. No	Lgth.Legs In	Wt.Lbs. Per 100	Price Per 100
9200	3$\frac{11}{16}$x2$\frac{3}{16}$	51	**$10.54**

L-Pole

For twist wires on poles. Made of 2x¼ inch steel with three holes for ⅜ inch lag screws. Hot galvanized.

Mfrs. No	Lgth.Legs In.	Wt.Lbs. Per 100	Price Per 100
9202	4x3	87	**$17.08**

HUBBARD TELEPHONE BRACKETS

Hot Galvanized

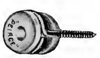
CORNER BRACKETS

The corner bracket is used where the lead from the pole comes to the building at an angle. One No. 9226 knob with a No. 9603 machine bolt or two No. 9226 knobs with a No. 9605½ machine bolt are used with these brackets, but not included in the price.

Mfrs. No.	Size Steel, In.	Lgth.of Legs, In.	Wt.Lb. Per 100	Price Per 100
9204	1$\frac{7}{32}$x$\frac{7}{32}$	4 x 5	65	**$12.50**
9205	1$\frac{7}{32}$x$\frac{7}{32}$	2⅞x10⅜	90	**18.75**

PEIRCE SINGLE KNOB FIXTURES

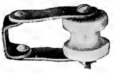
KNOB SCREW



For use on wooden buildings. Screw, 2½ inches.

Mfrs. No	Wt.Lbs. Per 100	Price Per 100
2920	44	**$25.62**

SWINGING KNOB



Can be fastened to wood buildings by screw and to brick walls by expansion bolt.

Mfrs. No	Wt.Lbs. Per 100	Price Per 100
2922	77	**$42.00**

KNOB STRAP

For strapping to wall. Mounting holes, $\frac{9}{32}$ inch.

Mfrs. No.	Wt.Lbs. Per 100	Price Per 100
2924	40	**$35.96**

PORCELAIN KNOBS FOR TELEPHONE FIXTURES

This knob is used with fixtures listed above. It is made of white glazed dry process porcelain and is 1½ inches high and 1¾ inches in diameter. Wire groove is ½ inch wide. The ½ inch hole is well rounded on the outer edges to prevent cutting insulation of wire when used on fixtures No. 2920 and 2924.

Mfrs. No.	Wire Groove, In.	Hole In.	Wt.Lb. Per 100	Price Per 100
2927	½	½	29	**$89.90**

PEIRCE KNOB FIXTURES

No. 2925

SWINGING

For light electric service wires and telephone twists. Hot galvanized.

Mfrs. No.	With Ins.No.	Wt. Lb Per 100	Price Per 100
2925	1603	102	**$44.98**
2926	2927	82	**39.88**
2932	1602	95	**47.26**

Length of screw, 2¼ inches.

No. 2932

PEIRCE INSULATED POLE BRACKETS

Hot Galvanized

These brackets are used for running duplex and single twisted leads from the lighting circuit down the pole to the Arc and Incandescent Lamp. They support the wire 5 inches from the pole.

Lag Screw Type

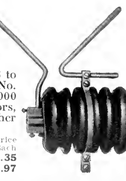
Mfrs. No	Wt.Lb. Per 100	Price Per 100
173	230	**$110.28**

Foot Type

Mfrs. No	Wt.Lb. Per 100	Price Per 100
174	260	**122.08**

PEIRCE LIGHTNING ARRESTERS

UNIVERSAL



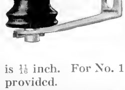
For distributing systems. For line or station. For 500 to 7500 volt circuits. Consists of choke coil, air gap and horn air gap. No. 3500 for conductors, No. 6 to 4/0 solid, 3/0 stranded. No. 3505 for 250,000 to 500,000 C. M. conductors. Insulators, wet-process porcelain; other parts brass.

Mfrs No.	Wt.Lb. Each	Price Each
3500	9½	**$11.35**
3505	9½	**12.97**

PEIRCE INSULATED CLEVISES

Hot Galvanized

WITH WET PROCESS INSULATORS

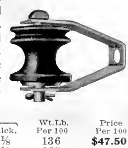


For dead-ending primary lines. With wet process insulators, brown glazed. Clevis is made of No. 11 gauge steel 1½ inches wide equipped with ⅝ inch clevis bolt and brass cotter pin. Hole for mounting No. 1339 is $\frac{11}{16}$ inch. For No. 1340 an oval hole $\frac{11}{16}$x¾ inch is provided.

Mfrs. No.	Dimensions, Inches Lgth.	Wdth.	Thick.	Wt.Lb. Per 100	Price Per 100
1339	4⅛	2⅛	⅞	115	**$55.00**
1340	4⅜	3¼	⅞	256	**87.50**

WITH DRY PROCESS INSULATORS

For secondary work. Furnished with standard Peirce rack insulators, No. 355 for the large type and No. 1606 for the small type. With the exception of the insulators these clevises are similar to the Nos. 1339 and 1340 described above.



Mfrs. No.	Dimensions, Inches Lgth.	Wdth.	Thick.	Wt.Lb. Per 100	Price Per 100
1341	4⅛	2⅛	1⅛	136	**$47.50**
1342	4¾	3	1½	225	**57.50**

PEIRCE HAMMER DRILLS

Mfrs. No.	For Bolts In.	Wt Lbs. Each	Price Each
50	¼	7.5	**$15.32**
53	⅜	8.0	**16.31**

HAND CHUCKS

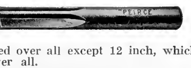
For hand and hammer drilling. For any size drill. Weight, 2½ pounds each.
Mfrs. No. **55**. Price Each................................**$2.06**

TAMPING TOOLS

For tamping lead sleeves of expansion bolts.

Mfrs. No.	Diam. Bolt, In. Straight	Wt.Lbs. Each	Price Each
67	¼	3.4	**$0.55**
68	⅜	4.9	**.55**
69	½	10.2	**.55**

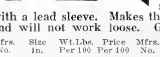
DRILL POINTS



Measured over all except 12 inch, which is 14 inches over all.

Mfrs. No.	Size In.	Wt.Lbs. Per 100	Price Per 100	Mfrs. No.	Size In.	Wt.Lbs. Per 100	Price Per 100
56	⅜x4	20	**$2.01**	**61**	⅝x12	79	**$3.67**
57	½x4	23	**2.01**	**62**	¾x6	47	**3.45**
58	½x6	33	**2.23**	**63**	¾x12	107	**4.14**
59	½x12	65	**2.45**	**64**	⅞x6	57	**3.67**
60	⅝x6	38	**2.94**	**65**	⅞x12	137	**4.40**

LEAD SLEEVE EXPANSION BOLTS



Consists of steel bolt with a wedge shaped head tapering toward the shank and provided with a lead sleeve. Makes the strongest fastening and will not work loose. Galvanized.

Mfrs. No.	Size In.	Wt.Lbs. Per 100	Price Per 100	Mfrs. No.	Size In.	Wt.Lbs. Per 100	Price Per 100
1	¼x1¾	7.1	**$8.94**	**9**	⅜x5	19.9	**$22.04**
2	¼x2	7.5	**9.46**	**10**	⅜x5½	21.0	**23.20**
3	¼x2½	8.3	**9.72**	**11**	½x2½	41.2	**25.86**
4	¼x3¼	9.5	**11.44**	**12**	½x3½	47.2	**28.44**
4A	¼x4	10.7	**12.88**	**13**	½x4	50.2	**29.70**
4B	¼x5	12.3	**16.34**	**14**	½x4½	53.0	**30.98**
5	⅜x2½	14.9	**16.00**	**15**	½x5	56.0	**32.28**
6	⅜x3	15.9	**16.90**	**16**	½x5½	59.0	**33.54**
7	⅜x3½	16.9	**18.34**	**17**	½x6½	62.0	**36.10**
8	⅜x4½	18.9	**21.70**	**18**	½x8	73.0	**40.26**

EXTRA LEAD SLEEVES

Mfrs. No.	Bolt In.	Wt.Lbs. Per 100	Price Per 100
22	¼	1.5	**$3.14**
23	⅜	6.6	**5.12**
24	½	12.4	**15.94**

MALLEABLE IRON PINS

FOR WOOD CROSS ARM—FLUTED SHANK

Mfrs. No.	Dimensions, Inches: Diam. Pin	Lgth. Shank	Lgth. Top	Diam. Thread	Wt.Lb. Per100	*Price Per 100 Jap'd	Galv'd
20A	¾	3	4¾	1	50	**$6.00**	**$8.00**
20B	1	3	4¾	1	65	**7.50**	**9.75**
20C	1¼	3	4¾	1	80	**9.00**	**12.00**
20D	1½	3	4¾	1	90	**10.50**	**14.00**
20E	1¼	4¼	4¾	1	105	**12.50**	**17.00**
20F	1½	4¼	4¾	1	115	**13.50**	**18.00**

FOR WOOD CROSS ARM—PLAIN SHANK

Mfrs. No.	Dimensions, Inches: Diam. Pin	Lgth. Shank	Lgth. Top	Diam. Thread	Wt.Lb. Per100	*Price Per 100 Jap'd	Galv'd
21A	1¼	3	4¾	1	100	**$9.00**	**$13.00**
21B	1¼	4¼	4¾	1	120	**12.50**	**17.00**
21C	1½	3	4¾	1	110	**10.50**	**14.50**
21D	1½	4¼	4¾	1	140	**13.50**	**18.50**

Mfrs. No.	Dimensions, Inches: Diam. Pin	Lgth. Shank	Lgth. Top	Diam. Thread	Wt.Lb. Per100	*Price Per 100 Jap'd	Galv'd
28A	1¼	4¼	4¾	1	125	**$12.00**	**$17.00**
28B	1½	4¼	4¾	1	130	**13.00**	**18.00**
28E	1½	4¼	4¾	1⅜	150	**15.00**	**20.00**
28H	1¼	4¼	4¾	1⅜	140	**14.00**	**19.00**

FOR IRON CROSS ARM—RIBBED SHANK

Mfrs. No.	Dimensions, Inches: Diam. Pin	Lgth. Shank	Lgth. Top	Diam. Thread	Wt.Lb. Per100	*Price Per 100 Jap'd	Galv'd
29A	1¼	4¼	4¾	1	125	**$12.00**	**$17.00**
29B	1½	4¼	4¾	1	140	**13.00**	**18.00**

For 1⅜ inch diameter thread add **$2.00** to above prices.

*Price is for pins with insertion, which will be furnished unless otherwise specified. Deduct **$1.00** per 100 for pins without insertion.

HIGH TENSION

Slotted Head with Insertion

Mfrs. No.	Dimensions, Inches: Diam. Bolt	Diam. Thread	Lgth. Pin	Wt.Lb. Per 100	Price Per 100 Jap'd	Galv'd
436A	⅝	1	4¾	170	**$26.00**	**$33.00**
436B	⅝	1	5½	190	**27.00**	**35.00**
436C	¾	1⅜	5½	210	**29.00**	**38.00**
436D	⅝	1	6	190	**28.00**	**36.00**
436E	¾	1⅜	6	210	**33.00**	**42.00**
436F	⅝	1	7½	215	**30.00**	**39.00**
436H	¾	1	7½	240	**35.00**	**45.00**
436K	⅝	1⅜	7½	240	**33.00**	**43.00**
436M	¾	1⅜	7½	290	**36.00**	**48.00**
436P	¾	1⅜	9	300	**37.00**	**49.00**
436R	¾	1⅜	10	340	**40.00**	**56.00**
436S	¾	1⅜	18	600	**60.00**	**85.00**
436T	½	1	4¾	100	**16.00**	**20.00**
436V	½	1	4¾	90	**15.00**	**18.00**

Can be furnished with leaded threaded heads for which add to above prices for 1 inch head **$25.00** per 100 and 1⅜ inch head **$32.00** per 100.

WITH SCREW SHANK

For telephone, telegraph and lighting service. Test strain on No. 24, 1100 pounds.

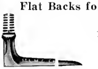
Malleable Iron with Wood Head

Mfrs. No.	Dimensions, Inches: Diam. Pin	Lgth. Shank	Lgth. Top	Wt.Lb. Per 100	Price Per 100 Plain	Galv'd
24	⅝	4	4¾	62	**$6.00**	**$8.50**
	Metal Head with Insertion					
19	⅝	4	4¾	75	**6.50**	**9.50**
	Metal Head without Insertion					
19A	⅝	4	4¾	75	**5.50**	**8.50**

MALLEABLE IRON BRACKETS

WALL BRACKETS

Flat Backs for High or Low Tension Wires

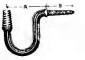


Mfrs. No.	Ext. In.	Wt.Lb. Per 100	*Price Per 100 Jap'd	Galv'd
100	3	90	**$11.00**	**$15.00**

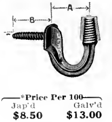
Mfrs. No.	Ext. In.	Wt.Lb. Per 100	*Price Per 100 Jap'd	Galv'd
101	3	180	**$16.00**	**$20.00**

Mfrs. No.	Ext. In.	Wt.Lb. Per 100	*Price Per 100 Jap'd	Galv'd
102	3	85	**$11.00**	**$15.00**

Mfrs. No.	Ext. In.	Wt.Lb Per 100	*Price Per 100 Jap'd	Galv'd
103	3	90	**$11.00**	**$15.00**



Mfrs. No.	Ext. In.	Wt.Lb. Per 100	*Price Per 100 Jap'd	Galv'd
466	4	100	**$13.00**	**$17.00**
467	4¾	150	**20.00**	**26.00**



Mfrs. No.	Ext. In.	Wt.Lb. Per 100	*Price Per 100 Jap'd	Galv'd
310	3	150	**$18.00**	**$22.00**

Mfrs No.	Extension Inches	Wt.Lb. Per 100	*Price Per 100 Jap'd	Galv'd
109	3	85	**$8.50**	**$13.00**

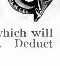
Mfrs No.	Extension Inches	Wt.Lb. Per 100	*Price Per 100 Jap'd	Galv'd
111	3	125	**$15.00**	**$21.00**
112	3	120	**10.60**	**13.00**

Mfrs. No.	Extension Inches	Wt.Lb. Per 100	*Price Per 100 Jap'd	Galv'd
104	3	150	**$11.00**	**$16.00**

Mfrs. No.	Extension Inches	Wt.Lb Per 100	*Price Per 100 Jap'd	Galv'd
106	3	150	**$13.00**	**$18.00**
107	3	200	**19.00**	**27.00**

Mfrs. No.	Extension Inches	Wt Lb. Per 100	*Price Per 100 Jap'd	Galv'd
656	4	100	**$11.00**	**$16.00**
657	4½	140	**16.00**	**21.00**
658	6	340	**35.00**	**48.00**
659	7	365	**36.00**	**49.00**
660	7	390	**41.00**	**56.00**
661	13	570	**58.00**	**81.00**
662	18	800	**81.00**	**113.00**

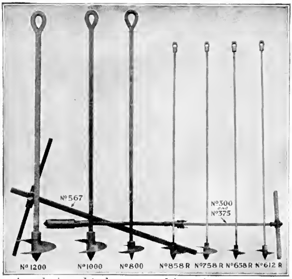
POLE BRACKETS



Mfrs. No.	Extension Inches	Wt.Lb. Per 100	*Price Per 100 Jap'd	Galv'd
108	3	110	**$19.00**	**$27.00**

*Price is for brackets with insertion, which will be furnished unless otherwise specified. Deduct **$1.00** for brackets without insertion.

MATTHEWS SCRULIX ANCHORS



Are designed to be screwed into the ground; not necessary to dig holes to install them. No moving parts to adjust and nothing to assemble. All anchors are six feet long over all, and furnished galvanized only. The use of No. 300 Matthews Earth Auger, listed below, is recommended for preparing the way for installation of Nos. 612R, 658R and 758R anchors. The No. 375 auger should be used before attempting to screw down Nos. 858R, 800, 1000 and 1200 anchors. A No. 567 wrench must be used with Nos. 612R, 658R, 758R and 858R anchors; no wrench is necessary with Nos. 800, 1000 or 1200. The latter numbers have square rods, and are guaranteed to outlast anchors having round galvanized steel rods of 1⅛, 1¼ or 1½ inch diameters. This is due to their greater resistance to twisting strain; furthermore, if they begin to twist, it is immediately apparent, while the rods do not show it.

With Round Rods

Mfrs. No.	Anchor Diam. In.	Size Rods In.	For Strains	Wt. per 100 Lbs.	Price Each
612R	6	½	Medium	750	**$3.90**
658R	6	⅝	Medium	850	**4.90**
758R	7	⅝	Medium	1200	**5.70**
858R	8	⅝	Heavy	1500	**7.40**
			With Square Rods		
800	8	1⅛	Heavy	3700	**16.50**
1000	10	1¼	Heavier	5700	**21.00**
1200	12	1½	Very Heavy	7900	**28.00**

MATTHEWS WRENCHES

For Use With Nos. 612R, 658R, 758R and 858R Anchors

Mfrs. No.	Length	Weight Lbs.	Price Each
567	5 ft. 4 in.	29	**$14.00**
865	Ratchet Handle	15	**32.00**

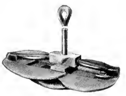
MATTHEWS AUGERS

For Setting Scrulix Anchors in Hard Ground

Mfrs. No.	Length	Weight Lbs.	Price Each
300	6 ft. 3 in.	19	**$17.00**
375	6 ft. 3 in.	20	**17.50**

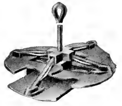
EVERSTICK ANCHORS

Two-Way Anchor Closed



Two-Way Anchor Expanded

Four-Way Anchor Closed



Four-Way Anchor Expanded

Everstick Anchors expand into solid and undisturbed earth at bottom of hole. There is absolutely no backward movement. It is not necessary to pull them up a foot or two to make them firm. The expanding is done by striking the anchor with a tamping bar.

Ordinary standard guy rods used in Everstick Anchors.

TWO-WAY—WITHOUT RODS

Mfrs. No.	Holding Surface Sq. In.	Expands to Cir. In.	Installed in Hole In.	Wt. Lb.	Price Each
5	45	5x 9	5	4	**$1.40**
6	66	6x11	6	7½	**2.20**
8	120	8x15	8	13½	**3.30**
		FOUR-WAY—WITHOUT RODS			
6	121	11	6	10½	**2.90**
8	225	15	8	18½	**4.80**
10	361	19	10	31	**7.50**

Nos. 5 and 6 Two-Way Anchors will take ⅝ or smaller rods of any length.

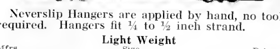
No. 6 Four-Way and No. 8 Two-Way, ¾ or smaller.

Nos. 8 and 10 Four-Way, 1 inch rod or smaller, any length.

RODS—GALVANIZED

Length	Size	Price Each	Length	Size	Price Each
6	½	**$1.00**	8	⅝	**$2.00**
6	⅝	**1.50**	8	¾	**2.50**
6	¾	**2.00**	8	1	**4.00**
6	1	**2.50**	10	1	**5.00**

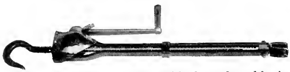
BLACKBURN'S NEVERSLIP CABLE HANGERS



Neverslip Hangers are applied by hand, no tool required. Hangers fit ¼ to ½ inch strand.

Mfrs. No.	Size Hanger, In.	Price Per 1000
	Light Weight	
1½	1½	**$32.00**
2	2	**36.00**
	Heavy Weight	
2	2	**41.00**
2½	2½	**47.00**
3	3	**53.00**
3½	3½	**58.00**

MATTHEWS SLACK PULLER

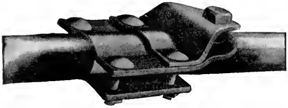


Designed to supplant the block and tackle in pulling wires, messenger and guy strand into position. It will hook around a pin if desired, and the other end is arranged with a swivel clevis to engage a Come-Along.

A ratchet handle is furnished which operates the gearing and the lead screw, and the gears are protected so as to shield them from any danger to the wire or strand.

Take-up Inches	Approximate Wt Lbs.	Price Each
20	12	**$52.50**

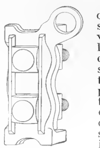
MATTHEWS CABLE CLAMPS



Designed to relieve the strain from power cable ranging in size from 000 up to 1,500,000 C. M. at corners and dead ends. Not for telephone cables.

Mfrs. No.	Finish	Wt Per 100 Lbs.	Price Per 100
CCMI	Painted Black	410	**$324.00**
CCMI	Galvanized	410	**384.00**

MATTHEWS 2-BOLT GUY CLAMP



Made in two styles, one size only. Will fit guy strand of all sizes up to ½ inch. Is provided with two extra heavy bolts with large nuts which will draw the clamping waves down on the strand, so that it is impossible to slip them. Will hold 16,000 pounds strain, and therefore, it takes the place of two and three ordinary three-bolt clamps. If old style clamp with eye is desired, order No. 1. Order No. 2 if eye is not desired.

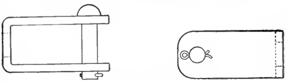
Mfrs. No.	Shipping Wt. Per 100	Price Each
1	190	**$0.90**
2	200	**.88**

PARAGON GROUND CONES

Furnished complete, filled or not filled with charcoal, as required, and with five feet of No. 4 soft copper leading-in wire welded to the grounds (no solder)—one continuous piece of solid copper to point of connection above ground removing all danger of destruction of connections from galvanic action.

Mfrs. No.	Length Feet	Gauge Copper	Price Each
3	1	21	**$4.75**
4	2	21	**6.25**

MATTHEWS DEADEND CLEVIS



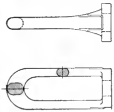
Showing Front and Side View

The deadend Clevis is made of wrought iron hot galvanized and the cotter pin that holds the ⅝-inch galvanized bearing pin is made of phosphor bronze. It is most convenient for attaching the eye of the standard strain insulators. Only necessary to use one eye bolt.

Made to fit ⅝-inch and ¾-inch eye bolts.

Mfrs. No.		For Bolt Size, In.	Price Each
1	With ½ in. bearing pin	½, ⅝ and ¾	**$0.50**
2	With ⅝ in. bearing pin	½, ⅝ and ¾	**.60**

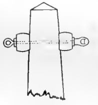
TYPE D MATTHEWS DEADEND EYE



Has opening 3¾ inches long. Made of galvanized malleable iron. Not threaded. Used for the same purpose as Deadend Clevis shown above. Made to fit heads of ½, ⅝ and ¾ inch arm bolts.

Mfrs No	For Bolt Size, In.	Price Each
Type D	½. ⅝. ¾	**$0.58**

MATTHEWS SCRULIX EYENUTS



Showing Scrulix Eyenut In Use

Scrulix Eyenut

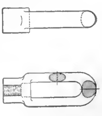
Scrulix Eyenut is made of malleable iron hot galvanized. It is the same as the thimbleless eye on Matthews Scrulix Anchors. Has smooth bearing surface for guy strand which is ¾ inch in diameter and therefore does not require a thimble. It is used with guy strand or strain insulators that hook on.

Made to fit ⅝ inch and ¾ inch eye bolts.

Mfrs. No.	For Bolt Size, In.	Price Each
1	½	**$0.56**
2	⅝	**.58**

TYPE A MATTHEWS DEADEND EYE

Has opening 2¾ inches long. Made of galvanized malleable iron. Used for the same purpose as Scrulix Eyenut above. Does not require thimble.



Mfrs. No.	For Bolt Size, In.	Price Each
Type A½	½	**$0.72**
Type A⅝	⅝	**.74**

IRON WOOD SCREWS

Round Head

Flat Head

PRICE PER GROSS

No. Screw	Length of Screw, Inches ¼	⅜	½	⅝	¾
0	$0.90	$0.90	....	....	....
1	.90	.90	$0.90	....	....
2	.90	.90	.90	$0.90	$0.90
3	.90	.90	.90	.90	.90
4	.90	.90	.90	.90	.95
5	....	.90	.90	.95	.95
6	....	.90	.90	.95	1.00
7	....	.90	.95	1.00	1.05
8	....	.90	1.00	1.05	1.10
9	....	....	1.05	1.10	1.15
10	....	....	1.10	1.15	1.20
11	....	....	....	1.20	1.25
12	....	....	....	1.25	1.30
14	....	....	....	....	1.40

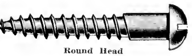
No. Screw	Length of Screw, Inches ⅞	1	1¼	1½	1¾
3	$0.95	$0.95	....	....	....
4	.95	1.00	$1.10	$1.20	....
5	1.00	1.05	1.15	1.25	....
6	1.05	1.10	1.20	1.30	$1.40
7	1.10	1.15	1.25	1.35	1.45
8	1.15	1.20	1.30	1.40	1.50
9	1.20	1 25	1.35	1.45	1.60
10	1.25	1.30	1.40	1.50	1.70
11	1.30	1.35	1.50	1.60	1.80
12	1.35	1.40	1.60	1.80	2.00
14	1.50	1.60	1.80	2.05	2.25
16	....	1.85	2.05	2.35	2.60
18	....	....	2.40	2.75	3.05
20	....	....	....	3.25	3.60

No. Screw	Length of Screw, Inches 2	2¼	2½	2¾	3
6	$1.55	$1.75	$1.95	....	....
7	1.60	1.80	2.00	....	....
8	1.65	1.85	2.05	$2.15	$2.45
9	1.75	1.95	2.15	2.25	2.55
10	1.85	2.05	2.25	2.45	2.65
11	2.00	2.20	2.40	2.60	2.80
12	2.20	2.40	2.60	2.80	3.00
14	2.50	2.75	3.00	3.25	3.50
16	2.90	3.20	3.50	3.80	4.10
18	3.40	3.75	4.10	4.45	4.80
20	4.00	4.40	4.80	5.20	5.60
24	....	....	....	....	7.40

No. Screw	Length of Screw, Inches 3½	4	4½	5
10	$3.00	....	....	....
11	3.20	....	....	....
12	3.40	$3.80	....	....
14	4.00	4.50	$5.10	$5.75
16	4.60	5.20	5.90	6.70
18	5.40	6.10	6.90	7.80
20	6.30	7.10	8.00	9.00
24	8.40	9.50	10.70	11.90

Lengths and diameters not listed are special; but are furnished to the extent they may be in stock or when required in sufficient quantities of a size to warrant being made to order. Such non-listed lengths and diameters take the list prices of the next longer or larger listed sizes.

BRASS WOOD SCREWS



Round Head

Flat Head

PRICE PER GROSS

No. Screw	Length of Screw, Inches ¼	⅜	½	⅝
0	$0.95	$0.95	....	....
1	.95	1.00	$1.05	....
2	1.00	1.05	1.10	$1.20
3	1.00	1.10	1.15	1.25
4	1.05	1.15	1.20	1.30
5	....	1.20	1.30	1.40
6	....	1.30	1.40	1.55
7	....	....	1.55	1.75
8	....	....	1.75	1.95
9	....	....	....	2.15
10	....	....	....	2.40

No. Screw	Length of Screw, Inches ¾	⅞	1	1¼
2	$1.30	....	....	....
3	1.35	....	....	....
4	1.40	$1.50	$1.60	....
5	1.50	1.65	1.80	....
6	1.70	1.85	2.00	$2.30
7	1.90	2.10	2.25	2.60
8	2.15	2.35	2.55	2.95
9	2.40	2.60	2.85	3.30
10	2.65	2.90	3.15	3.65
11	2.95	3.20	3.50	4.10
12	3.25	3.55	3.90	4.60
14	....	....	4.75	5.65

No. Screw	Length of Screw, Inches 1½	1¾	2	2¼
6	$2.65	....	....	....
7	3.00	....	....	....
8	3.35	$3.75	$4.25	....
9	3.75	4.25	4.75	....
10	4.20	4.80	5.35	$5.95
11	4.70	5.40	6.00	6.70
12	5.35	6.10	6.80	7.50
14	6.55	7.45	8.35	9.30
16	....	....	10.20	11.30
18	....	....	12.30	13.60

No. Screw	Length of Screw, Inches 2½	3	3½
10	$6.60	....	....
11	7.40	....	....
12	8.25	$9.75	$11.25
14	10.25	12.00	14.00
16	13.00	14.70	17.00
18	15.00	17.70	20.50

Lengths and diameters not listed are special; but are furnished to the extent they may be in stock or when required in sufficient quantities of a size to warrant being made to order. Such non-listed lengths and diameters take the list prices of the next longer and larger listed sizes.

CINCH ANCHORING SPECIALTIES

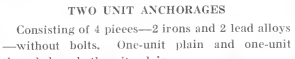
The principle employed in construeting Cinch anehoring speeialties is scientifieally sound. It is based on the wedge, the serew and the lever.

A Cineh anehorage bites quiekly and positively. Properly installed, it simply cannot pull out or work loose. Its lead-composition parts get a complete surfaee grip, filling even the shallowest irregularities in the wall of a hole. As the pull increases, the push against the side of the hole increases more than proportionately on account of the wedging aetion of the iron eones. The greater the load sustained, the stronger the hold obtained.

A Cineh anehorage can be used on any maehine bolt or maehine threaded attachment device. It eonsists of two or more lead-and-iron expansion units, as explained below. A two unit anehorage is sufficient to carry ordinary loads. The smallest Cineh anchorage, $\frac{3}{16}$ of an ineh, has carried a weight of over one thousand pounds in numerous tests.

TWO UNIT ANCHORAGES

Consisting of 4 pieees—2 irons and 2 lead alloys —without bolts. One-unit plain and one-unit threaded, or both units plain.



Plain Threaded

Use two units for anehorage of ordinary strength.

Diameter of Bolt Sizes	Minimum Depth of Holes For Two-Units	Diameter of Hole and Drill Required	Price Per 100
$\frac{3}{8}$	$\frac{7}{8}$	$\frac{1}{2}$	$ 7.00
$\frac{1}{4}$	$1\frac{1}{8}$	$\frac{5}{8}$	8.00
$\frac{5}{16}$	$1\frac{1}{8}$	$\frac{5}{8}$	9.00
$\frac{3}{8}$	$1\frac{1}{2}$	$\frac{13}{16}$	11.00
$\frac{7}{16}$	$1\frac{1}{2}$	$\frac{13}{16}$	15.00
$\frac{1}{2}$	$1\frac{3}{4}$	1	18.00
$\frac{5}{8}$	$1\frac{7}{8}$	$1\frac{1}{8}$	24.00
$\frac{3}{4}$	$2\frac{1}{2}$	$1\frac{3}{8}$	35.00
$\frac{7}{8}$	$2\frac{3}{4}$	$1\frac{1}{2}$	44.00
1	$3\frac{1}{4}$	$1\frac{5}{8}$	63.00
$1\frac{1}{8}$	$4\frac{1}{2}$	2	140.00
$1\frac{1}{4}$	$4\frac{3}{4}$	$2\frac{1}{8}$	150.00
$1\frac{1}{2}$	$5\frac{1}{4}$	$2\frac{3}{8}$	220.00

Prices are per 100 sets, 2 irons, 2 lead alloys.

Note.—If no $\frac{13}{16}$ inch drill is available, a $\frac{3}{4}$ inch drill can be used.

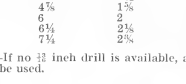
CINCH ANCHORING SPECIALTIES
THREE UNIT ANCHORAGES

Consisting of 6 pieces—3 irons and 3 lead alloys —without bolts. Two-units plain and one-unit threaded, or all three units plain.

Diameter of Bolt Sizes	Minimum Depth of Holes For Three-Units	Diameter of Hole and Drill Required	Price Per 100
$\frac{3}{8}$	$1\frac{1}{4}$	$\frac{1}{2}$	$10.50
$\frac{1}{4}$	$1\frac{5}{8}$	$\frac{5}{8}$	12.00
$\frac{5}{16}$	$1\frac{5}{8}$	$\frac{5}{8}$	13.50
$\frac{3}{8}$	$2\frac{1}{4}$	$\frac{13}{16}$	16.50
$\frac{7}{16}$	$2\frac{1}{4}$	$\frac{13}{16}$	22.50
$\frac{1}{2}$	$2\frac{5}{8}$	1	27.00
$\frac{5}{8}$	$2\frac{7}{8}$	$1\frac{1}{8}$	36.00
$\frac{3}{4}$	$3\frac{3}{4}$	$1\frac{3}{8}$	52.50
$\frac{7}{8}$	4	$1\frac{1}{2}$	66.00
1	$4\frac{7}{8}$	$1\frac{5}{8}$	94.50
$1\frac{1}{8}$	6	2	210.00
$1\frac{1}{4}$	$6\frac{1}{2}$	$2\frac{1}{8}$	225.00
$1\frac{1}{2}$	$7\frac{1}{4}$	$2\frac{3}{8}$	330.00

Note.—If no $\frac{13}{16}$ inch drill is available, a $\frac{3}{4}$ inch drill can be used.

CINCH DRIVE SLEEVE EXPANSION BOLT



No calking tool necessary, installed at the depths given below. A few raps with hammer drives the shield seeurely into masonry, giving a seeure and permanent anchor whieh will not vibrate loose nor ride the walls of the hole. With shield installed simply plaee the work in position and serew bolt in the shield.

Size Bolt	Depth of Hole	Diameter of Hole and Drill Required	Price Per 100
8x32	$\frac{3}{8}$	$\frac{1}{4}$	$5.00
10x24	$\frac{3}{4}$	$\frac{5}{16}$	5.50
12x24	1	$\frac{1}{2}$	7.25
$\frac{1}{4}$x20	$1\frac{3}{8}$	$\frac{5}{8}$	8.00

THE CINCH DRIVE SLEEVE EXPANSION BOLT WITHOUT DRIVE SLEEVE

No. 28

When above is to be shipped without the drive sleeve eonsisting simply of the extension threaded male eone and its single alloy, the following list applies. Shield is expanded with an ordinary piece of iron pipe or calking tool.

Size Bolt	Depth of Hole	Diameter of Hole and Drill Required	Price Per 100
6x32	$\frac{3}{8}$	$\frac{1}{4}$	$3.75
8x32	$\frac{1}{2}$	$\frac{5}{16}$	4.40
10x24	$\frac{3}{8}$	$\frac{3}{8}$	4.85
12x24	$\frac{7}{16}$	$\frac{1}{2}$	6.35
$\frac{1}{4}$x20	$\frac{7}{8}$	$\frac{5}{8}$	7.00

DIAMOND EXPANSION BOLTS

DIAMOND N-Y

For use with Lag Screws

Long Standard Pattern

Diam. Screw, In.	Lgth Shield, In.	Outside Diam. Shield, In.	Diam. Drill Required, In.	Wt. Lbs. per 100	Price Per 100 Shields Only
¼	1½	½	½	6	**$15.00**
5/16	1¾	9/16	9/16	8	**18.00**
⅜	2¾	⅝	⅝	16	**25.00**
7/16	2¾	11/16	11/16	20	**32.00**
½	3½	¾	¾	25	**38.00**
⅝	3½	⅞	⅞	29	**45.00**
¾	3½	1⅛	1⅛	40	**65.00**
⅞	5	1⅜	1⅜	84	**95.00**
1	5	1½	1½	93	**110.00**
		Short Standard Pattern			
⅜	2	⅝	⅝	11	**25.00**
7/16	2	11/16	11/16	14	**32.00**
½	2	¾	¾	16	**38.00**
⅝	2	⅞	⅞	20	**45.00**
¾	2	1⅛	1⅛	23	**65.00**
		Extra Short Standard Pattern			
⅜	1½	⅝	⅝	8	**25.00**
½	1½	¾	¾	9	**38.00**
⅝	1½	⅞	⅞	14	**45.00**

One Hundred in a Box.

KEYSTONE

For use with Machine Bolts or Machine Screws
Double

Diam. In.	Lgth. In.	Size Drill Required, In.	Wt. Lbs. Per 100	Price Per 100 Shields Only
¼	1½	½	5¼	**$15.00**
5/16	1¾	9/16	7½	**18.00**
⅜	2	11/16	11	**25.00**
7/16	2⅝	⅞	23	**32.00**
½	2⅝	⅞	28	**38.00**
⅝	2⅞	1	28	**45.00**
¾	3⅜	1¼	52	**65.00**
⅞	4½	1½	90	**95.00**
1	4½	1⅝	102	**110.00**

Single

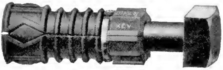
Diam. In.	Lgth. In.	Size Drill Required, In.	Wt. Lbs. Per 100	Price Per 100 Shields Only
¼	1 5/16	½	**5**	**15.00**
5/16	1½	9/16	**7**	**18.00**
⅜	1⅝	11/16	10	**25.00**
½	1⅞	⅞	18	**38.00**
⅝	2	1	22	**45.00**
¾	2¾	1 3/16	44	**65.00**
⅞	3¾	1⅜	80	**95.00**
1	3¾	1 7/16	95	**110.00**

One Hundred in a Box.

DIAMOND EXPANSION SHIELDS

DI-EN-KEY

For use with Machine Bolts or Screws
Patented



Diam. Bolt, In.	Lgth. In.	Outside Diam. Shield, In.	Diam. Drill Required, In.	Wt. Lbs. Per 100	Price Per 100 Shields Only
¼	1	7/16	7/16	3	**$15.00**
5/16	1¾	9/16	9/16	6	**18.00**
⅜	2	11/16	11/16	10	**25.00**
½	2½	⅞	⅞	20¼	**38.00**
⅝	2½	1	1	22	**45.00**
¾	3¾	1¼	1¼	38	**65.00**

SUPER GRIP

For use with Machine Bolts or Screws
Patented

Diam. Bolt In.	Price Per 100 Shields Only	Diam. Bolt, In.	Price Per 100 Shields Only
3/16	**$10.00**	7/16	**$32.00**
¼	**15.00**	½	**38.00**
5/16	**18.00**	⅝	**45.00**
⅜	**25.00**	¾	**65.00**

DIAMOND SCREW ANCHORS

DIAMOND N-Y

For use with Wood Screws

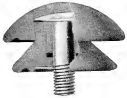
Diam. Screw, In.	Screw No.	Lgth. Shield, In.	Outside Diam., In.	Price Per 100
⅛	5-6-7	½	¼	**$4.40**
⅛	5-6-7	⅝	¼	**4.40**
⅛	5-6-7	¾	¼	**4.40**
⅛	5-6-7	1	¼	**4.40**
3/16	8-9-10-11	½	¼	**5.00**
3/16	8-9-10-11	¾	5/16	**5.00**
3/16	8-9-10-11	1	5/16	**5.00**
3/16	8-9-10-11	1	⅜	**5.00**
3/16	9-10-11	1⅝	5/16	**6.25**
¼	12-13-14	½	⅜	**5.60**
¼	12-13-14	¾	⅜	**5.60**
¼	12-13-14	1	⅜	**5.60**
¼	12-13-14	1½	⅜	**8.00**
¼	12-13-14	2	⅜	**10.00**
¼	12-13-14	2½	⅜	**12.00**
5/16	15-16-17-18	¾	7/16	**6.25**
5/16	15-16-17-18	1	7/16	**6.25**
5/16	15-16-17-18	1⅜	½	**10.00**
5/16	15-16-17-18	1½	7/16	**10.00**
5/16	15-16-17-18	2	7/16	**13.00**
⅜	20-22-24	1	9/16	**13.00**
⅜	22-23-24	1¼	9/16	**15.00**
⅜	22-23-24	2	9/16	**15.00**
½	26-28-30	2	¾	**25.00**
⅝	⅝ in. Lag Screw	2	⅞	**30.00**
⅝	⅝ in. Lag Screw	3½	⅞	**50.00**

One Hundred in a Box.
Made of non-corroding, rust-proof composition metal.

WESTINGHOUSE CAP AND CONE INSULATORS

750 Volts—Test Voltage 10,000

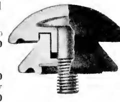
TYPE A CAP AND CONE



Standard Cap and Cone Insulator

Mfrs. No.	Wt.Lb Per 100	Price Per 100
185775	100	$84.00
Standard Cap Only		
185772	70	56.00
Standard Cone Only		
185773	30	28.00

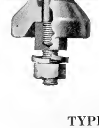
TYPE A-1, FOR USE WITH LOCK WASHERS



Hot Mould Special Cap and Cone Insulator

Mfrs. No.	Wt Lb. Per 100	Price Per 100
241640	95	$84.00
Hot Mould Standard Cap Only		
185772	70	56.00
Hot Mould Special Cone Only		
241639	25	28.00

COKE OVEN TYPE



Complete Cap and Cone With Extension Stud, Lock Washer and Nut

Mfrs. No.	Wt.Lb. Per 100	Price Per 100
268527	140	$130.00
Cap and Cone Only		
290719	108	84.00
Standard Cap Only		
265956	70	56.00
Special Cone Only		
285631	38	28.00
Extension Stud Only With Lock Washer and Nut		
278006	32	46.00

TYPE A SUSPENSIONS

SINGLE TROLLEY—750 Volts

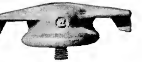
Mfrs. No.	Description	Wt.Lb. Per 100	Price Per 100
52557	Straight Line Complete........	195	$132.00
52559	Straight Line, Malleable Iron Body Only, Sherardized..........	102	48.00
52560	Single Curve Complete...........	222	140.00
52562	Single Curve, Malleable Iron Body Only, Sherardized..........	129	56.00
52563	Double Curve Complete..........	286	168.00
52565	Double Curve, Malleable Iron Body Only, Sherardized..........	193	84.00

DOUBLE TROLLEY—750 Volts

Mfrs. No.	Description	Wt.Lb Per 100	Price Per 100
82645	Straight Line Complete............	436	$268.00
82648	Straight Line, Malleable Iron Body Only, Sherardized..........	250	100.00
82633	Single Curve Complete............	461	293.00
82636	Single Curve, Malleable Iron Body Only, Sherardized..........	275	125.00
82639	Double Curve Complete..........	486	308.00
82642	Double Curve, Malleable Iron Body Only, Sherardized..........	300	140.00

WESTINGHOUSE TYPE B SUSPENSIONS

750 Volts—Round Top



Nos. 227032, 227037

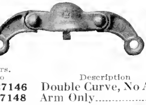
Diameter of stud is ⅝ inch.

•Mfrs. No	Description	Diam. Body Inches	Wt. Per 100	Price Per 100
227032	Straight Line, Medium	3¼	175	$105.00
227037	Straight Line, Large....	3½	200	120.00
227140	Straight Line, No Arms	3¼	185	115.00

No. 227144

Diameter of stud is ⅝ inch.

Mfrs. No.	Description	Diam. Body Inches	Wt. Per 100	Price Per 100
227142	Single Curve, No. Arm	3¼	160	$110.00
227144	Single Curve, Arm......	3¼	230	140.00



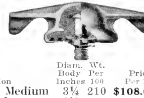
No. 227146

Diameter of stud is ⅝ inch.

Mfrs. No	Description	Diam. Body Inches	Wt. Per 100	Price Per 100
227146	Double Curve, No Arm	3¼	325	$175.00
227148	Arm Only........................	......	55	30.00

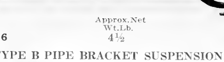
TYPE B-1 SUSPENSION

Diameter of stud is ⅝ inch.



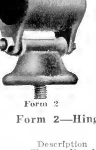
Mfrs. No.	Description	Diam. Body Inches	Wt. Per 100	Price Per 100
300814	Straight Line, Medium	3¼	210	$108.00
305688	Straight Line, Large....	3½	235	123.00

CROSS-SPAN HANGER TOOL

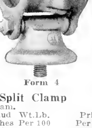


Mfrs No.	Approx.Net Wt.Lb.	Price Each
128426	4½	$7.50

TYPE B PIPE BRACKET SUSPENSIONS



Form 2

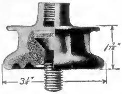


Form 4

Form 2—Hinged With Split Clamp

Mfrs. No.	Description	Size Pipe Inches	Diam. Stud Inches	Wt.Lb. Per 100	Price Per 100
52596	Sherardized	1½	⅝	360	$225.00
52598	Sherardized	2	⅝	400	250.00
Form 4—Hinged With Split Clamp					
182360	Sherardized	1½	⅝	355	225.00
182354	Sherardized	2	⅝	395	250.00
Insulated Bell for Pipe Bracket Suspensions					
227138	Sherardized	......	⅝	150	115.00

WESTINGHOUSE MINE SUSPENSIONS



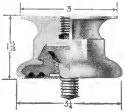
Type BF Rock Suspension

Diamcter of body, 3¼ inches.

Mfrs. No.	Type	Wt.Lb. Per 100	Price Per 100
207352	BF	150	**$90.00**
246700	BF-2	150	**90.00**

No. 207352, sherardized; No. 246700, japanned.

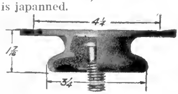
Type BL Timber Suspension



Diameter of body, Nos. 207353 and 282115, 3¼ inches; No. 227139, 3½ inches.

Mfrs. No.	Type	Wt.Lb. Per 100	Price Per 100
207353	BL-3	140	**$90.00**
227139	BL-3	165	**95.00**
282115	BL-5	140	**90.00**

Nos. 207353 and 227139 are sherardized; No. 282115 is japanned.

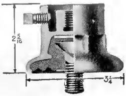


Types LH and LJ Combination Suspensions

Mfrs. No.	Type	Wt.Lb. Per 100	Price Per 100
	Diameter Body, 3¼ Inches		
246702	LH	160	**$95.00**
246701	LH	160	**95.00**
	Diameter Body, 3½ Inches		
294317	LJ	175	**$110.00**
294318	LJ	175	**110.00**

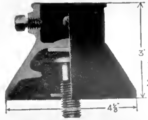
Nos. 246702 and 294317 are sherardizcd; Nos. 246701 and 294318 are japanned.

Type JW Suspension



Mfrs. No.	Type	Wt.Lb. Per 100	Price Per 100
246703	JW	170	**$120.00**
246704	JW	170	**120.00**

No. 246703 is japanned; No. 246704 is sherardizcd.

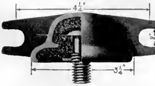


Type AM-1 Suspension

For 1¼ Inch Pipe

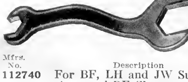
Mfrs. No.	Wt.Lb. Per 100	Price Per 100
296305	262	**$120.00**

Type TH Suspension



Mfrs. No.	Wt.Lb. Per 100	Price Per 100
246708	155	**$115.00**
247851	155	**115.00**

No. 246708, sherardized; No. 247851, japanned.



TYPE BF WRENCH

Mfrs. No.	Description	Appx.Net Wt.Lb.	Price Each
112740	For BF, LH and JW Suspensions and RE Clamps..............	1¼	**$0.50**
281996	For BF, LH and JW Suspensions and RE-1 Clamps..........	1¼	**.50**

WESTINGHOUSE TYPE D SUSPENSIONS

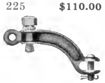
FOR SINGLE TROLLEY

Straight line. Diameter of stud, ⅝ inch.

Mfrs. No.	Wt.Lb. Per 100	Price Per 100
127059	225	**$110.00**

Single Curve. Diametcr of stud, ⅝ inch.

Mfrs. No	Wt.Lb. Per 100	Price Per 100
54950	169	**$90.00**



Double curve. Diameter of stud, ⅝ inch.

Mfrs. No.	Wt.Lb. Per 100	Price Per 100
54956	245	**$145.00**

*FOR DOUBLE TROLLEY

Straight line. Diametcr of stud, ⅝ inch.

Mfrs. No.	Wt.Lb. Per 100	Price Per 100
82701	410	**$215.00**

Single curve. Diameter of stud, ⅝ inch.

Mfrs. No.	Wt.Lb. Per 100	Price Per 100
82629	360	**$185.00**

Double curve. Diameter of stud, ⅝ inch.

Mfrs. No.	Wt.Lb. Per 100	Price Per 100
82617	420	**$270.00**

STRAIGHT LINE YOKE

***For Double Trolley**

⅝ inch bolt. Diameter of stud, ⅝ inch.

Mfrs. No.	Wt.Lb. Per 100	Price Per 100
82689	262	**$140.00**

*Six inch spacing between stud centers.

WESTINGHOUSE FEED WIRE INSULATORS FOR MINES

Mfrs. No.	Description	Wt.Lb. Per 100	Price Per 100
	Type MF		
246707	Complete, Sherardized Pin..	106	**$26.00**
251643	Complete with Plain Pin......	106	**26.00**
246705	Porcelain Spool....................	60	**9.00**
246706	Malleable Iron Pin, Plain....	46	**17.00**
256261	Malleable Iron Pin, Sherardized	46	**17.00**
	Type MG		
182018	Complete, Sherardizcd Pin..	200	**44.00**
256262	Complete with Plain Pin......	200	**44.00**
146632	Porcelain Spool....................	120	**16.00**
137729	Mallcable Iron Pin, Sherardized	80	**28.00**
256306	Malleable Iron Pin, Plain....	80	**28.00**
356831	With Shcrardized Pin, 1 Inch Grooved Porc. Spool..	210	**44.00**
356830	Porcelain Spool Only, 1 Inch Groove	130	**16.00**
	Type RS		
300641	Complete	118	**26.00**
246705	Porcelain Spool....................	56	**9.00**
304421	Malleable Iron Pin.	50	**17.00**
304422	Malleable Iron Washer........	12	**1.80**

WESTINGHOUSE EXPANSION BOLTS

Sherardized

FORM AM

Form AM

Form AM has a ⅝ inch bolt with square head; for use with type A mine suspension.

Mfrs. No.	Description	Wt.Lb. Per 100	Price Per 100
125763	Complete with 4 Inch Shell	113	$48.00
141620	Complete with 6 Inch Shell	159	61.00

FORM BM

Form BM has a ⅝ inch stud with fixed square shoulder.

Mfrs. No.	Description	Wt.Lb. Per 100	Price Per 100
127267	Complete with 4 Inch Shell	120	$62.50
141621	Complete with 6 Inch Shell	170	75.00

Form BM

FORM CM

Form CM

Form CM has a ⅝ inch stud, threaded at both ends.

Mfrs. No	Description	Wt.Lb. Per 100	Price Per 100
108142	Complete with 4 Inch Shell	120	$42.00
141622	Complete with 6 Inch Shell	170	55.00

FORM WS

Form WS consists of wood plug 1½ by 3 or 4 inches and stud lag ⅝ by 4 or 5 inches.

Mfrs. No	Description	Wt.Lb. Per 100	Price Per 100
83123	4 Inch Wood Plug	16	$8.00
256266	⅝x5 Inch Stud Lag, Sherardized	27	11.00
306281	3 Inch Wood Plug	14	6.00
306283	⅝x4 Inch Stud Lag, Sherardized	22	9.00

Form WS

WESTINGHOUSE PIPE EXTENSION COUPLINGS

For Use with ¾ Inch Pipe

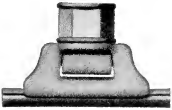
Upper pipe extension coupling, sherardized.

Mfrs. No	Wt.Lb. Per 100	Price Per 100
289975	27	$50.00

Lower pipe extension coupling, sherardized.

Mfrs. No.	Wt.Lb. Per 100	Price Per 100
289976	22	$40.00

WESTINGHOUSE MINE CLAMPS



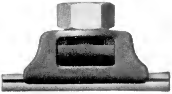
TYPE RE

Malleable Iron
Length, 3 Inches

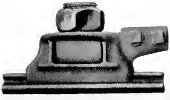
Mfrs. No.	Description, Wire	Diam. Tap In.	Wt. Per 100	Price Per 100
180417	No. 00-0000 Grooved	⅝	65	$66.00
180418	No. 00-0000 Figure 8	⅝	65	66.00
220287	No. 00 Round	⅝	65	66.00
221308	No. 000-0000 Round	⅝	65	66.00
239225	No. 0 Rd., Bronze Jaws	⅝	65	100.00

TYPE RE-1

Malleable Iron
Length, 3 Inches



Mfrs. No.	Description, Wire	Diam. Tap In.	Wt. Per 100	Price Per 100
279361	No. 00-0000 Grooved	⅝	65	$51.00
280229	No. 00-0000 Figure 8	⅝	65	51.00



TYPE RE-I

Mechanical Feeder Clamp Bronze
Length, 3 Inches

Mfrs. No.	Description, Wire	Diam. Tap In.	Wt. Per 100	Price Per 100
285471	No. 00-0000 Grooved	⅝	81	$132.00
285472	No. 00-0000 Figure 8	⅝	81	132.00

WEDGE TYPE CLAMP

Malleable Iron
Sherardized
Length,
4 Inches

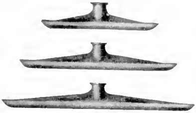
Mfrs. No.	Description, Wire	Diam. Tap, In.	Wt.Lb. Per 100	Price Per 100
289070	No. 00-0000 Grooved	⅝	100	$60.00
291611	No. 00-0000 Figure 8	⅝	100	60.00
292337	No. 00 Round	⅝	100	60.00
292338	No. 000-0000 Round	⅝	100	60.00

UNIVERSAL WRENCH FOR MINE CLAMPS

Mfrs. No.	Description	Wt.Lb. Each	Price Each
296497	Malleable Iron, Sherardized	1	$0.50

WESTINGHOUSE TROLLEY EARS

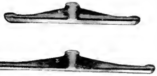
Bronze



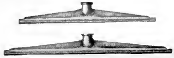
TYPE E FOR ROUND WIRE

Mfrs. No.	Size Wire		Diam. Tap In.	Wt. Lb.	Price Per 100
	Length, 9 Inches				
318643	0	Round	⅝	65	$76.00
318644	00	Round	⅝	65	82.00
	Length, 12 Inches				
318645	0	Round	⅝	85	88.00
318646	00	Round	⅝	85	96.00
318647	000	Round	⅝	110	104.00
318649	0000	Round	⅝	110	112.00
	Length, 15 Inches				
318651	0	Round	⅝	100	102.00
318652	00	Round	⅝	105	110.00
318653	000	Round	⅝	130	120.00
318655	0000	Round	⅝	135	130.00

TYPE EL LOW-CENTER EAR FOR ROUND WIRE



Mfrs. No.	Size Wire		Diam. Tap In.	Wt. Lb.	Price Per 100
	Length, 12 Inches				
318631	0	Round	⅝	85	$88.00
318632	00	Round	⅝	85	96.00
318633	000	Round	⅝	105	104.00
318635	0000	Round	⅝	110	112.00
	Length, 15 Inches				
318637	0	Round	⅝	100	102.00
318638	00	Round	⅝	105	110.00
318639	000	Round	⅝	125	120.00
318641	0000	Round	⅝	130	130.00



TYPE G FOR GROOVED AND FIG. 8 WIRE

Mfrs. No.	Size Wire		Diam. Tap In.	Wt. Lb.	Price Per 100
	Length, 12 Inches				
122611	0	Grooved	⅝	80	$105.00
82799	00	Grooved	⅝	85	115.00
122609	000	Grooved	⅝	95	125.00
82801	0000	Grooved	⅝	100	135.00
	Length, 15 Inches				
124760	0	Grooved	⅝	100	122.00
82803	00	Grooved	⅝	105	132.00
124762	000	Grooved	⅝	115	144.00
82805	0000	Grooved	⅝	125	156.00
	Length, 12 Inches				
126976	0	Fig. 8	⅝	85	105.00
126977	00	Fig. 8	⅝	90	115.00
126978	000	Fig. 8	⅝	100	125.00
126980	0000	Fig. 8	⅝	105	135.00
	Length, 15 Inches				
139742	0	Fig. 8	⅝	105	122.00
139743	00	Fig. 8	⅝	110	132.00
139745	000	Fig. 8	⅝	120	144.00
139747	0000	Fig. 8	⅝	125	156.00

WESTINGHOUSE SPLICING SLEEVES

STANDARD

Brass

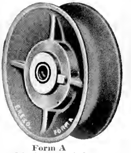
Mfrs. No.	Size of Wire: Round	Size of Wire: Grooved	Dimen. Inches: Lgth	Dimen. Inches: Dia.	Wt. Lb.	Price Per 100
87514	0	....	10	⅝	48	$132.00
87513	0	....	15	⅝	75	180.00
87516	00	0	10	11/16	45	132.00
87515	00	0	16	11/16	76	200.00
141145	00	0	18	11/16	84	270.00
92232	000	00	11	¾	70	200.00
87517	000	00	18	¾	115	300.00
92233	0000	000	12	⅞	104	270.00
87518	0000	000	20	⅞	174	420.00
92234	....	0000	12	⅞	104	270.00
87519	....	0000	20	⅞	164	420.00

EMERGENCY

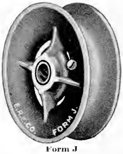
Made of Extra Strong Bronze

Mfrs. No.	Size of Wire: Round	Size of Wire: Grooved	Dimen. Inches: Lgth.	Dimen. Inches: Dia.	Wt. Lb.	Price Per 100
247941	0	....	10	11/16	69	$130.00
247942	00	0	10	¾	70	140.00
247943	000	00	10	13/16	83	160.00
247944	0000	000	15	⅞	120	200.00
247045	....	0000	15	15/16	137	220.00
247946	0 rd. in one end	00 gvd. in other	10	13/16	85	160.00
247947	00 Fig. 8		10	....	63	140.00
247948	000 Fig. 8		15	....	100	200.00
147949	0000 Fig. 8		15	....	159	220.00
140183	Extra Steel Wedges	....	....	....	......	6.00

TROLLEY WHEELS



Form A



Form J

Made of highest grade bronze metal. Complete with genuine graphite filled bushing and in ordinary service no oil is required.

Form A is fitted with an oil chamber and is especially recommended for use for severe working conditions.

Mfrs. No.	Form	Diam. In.	Bushing Size, In.	Price Per 100
7101	J	4	½x1½	$266.00
7100	A	4	½x1½	310.50
7549	Q	6	½x1½	580.00
7550	Q	6	⅝x1½	582.00

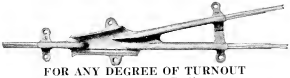
TROLLEY WHEEL BUSHINGS

Bronze Metal, Graphite Filled

Mfrs. No.	Dimensions, Inches: Inside	Dimensions, Inches: Outside	Dimensions, Inches: Length	Price Per 100
7099	½	⅞	1½	$31.30
7530	⅝	1	1½	33.70
7531	½	⅞	1⅞	40.00
7532	¾	1⅛	3	76.00
7533	⅝	1	2	43.50
7534	1	1⅜	1½	51.30
7535	¾	1⅛	2	58.00
7460	1½	2	3	200.00

WESTINGHOUSE TROLLEY FROGS

DETROIT TROLLEY FROGS



FOR ANY DEGREE OF TURNOUT

Malleable Iron Bodies

Right-Hand

Mfrs. No.	Size and Type of Wire	Overall Lgth. In.	Net Wt. Lb.	Price Each
167514*	00 Rd. or Gvd.	37½	14	**$11.00**
146360	000 Rd. or Gvd.	37½	14	**11.00**
146361	0000 Rd. or Gvd.	37½	14	**11.00**
183148	00 Fig. 8	37½	14	**11.00**
183149	000 Fig. 8	37½	14	**11.00**
183150	0000 Fig. 8	37½	14	**11.00**
	Left-Hand			
167516*	00 Rd. or Gvd.	37½	14	**11.00**
146370	000 Rd. or Gvd.	37½	14	**11.00**
146371	0000 Rd. or Gvd.	37½	14	**11.00**
183151	00 Fig. 8	37½	14	**11.00**
183152	000 Fig. 8	37½	14	**11.00**
183153	0000 Fig. 8	37½	14	**11.00**
	Bronze Bodies			
	Right-Hand			
167510*	00 Rd. or Gvd.	37½	14	**16.00**
146356	000 Rd. or Gvd.	37½	14	**16.00**
146357	0000 Rd. or Gvd.	37½	14	**16.00**
159493	00 Fig. 8	37½	14	**16.00**
159494	000 Fig. 8	37½	14	**16.00**
159495	0000 Fig. 8	37½	14	**16.00**
	Left-Hand			
167512*	00 Rd. or Gvd.	37½	14	**16.00**
146366	000 Rd. or Gvd.	37½	14	**16.00**
146367	0000 Rd. or Gvd.	37½	14	**16.00**
159497	00 Fig. 8	37½	14	**16.00**
159498	000 Fig. 8	37½	14	**16.00**
159499	0000 Fig. 8	37½	14	**16.00**

*Covers frogs specially adapted for use with shallow 3 and 4 inch wheels. These will work equally well with the standard interurban wheel.

V-SHAPED DETROIT FROGS

Malleable Iron Bodies

Mfrs. No.	Size and Type of Wire	Net Wt. Lb.	Price Each
162390	00 Round or Grooved†	14	**$11.00**
162391	000 Round or Grooved†	14	**11.00**
162392	0000 Round or Grooved†	14	**11.00**
	Bronze Bodies		
162386	00 Round or Grooved†	14	**16.00**
162387	000 Round or Grooved†	14	**16.00**
162388	0000 Round or Grooved†	14	**16.00**

†Can be furnished for Fig. 8 wire when specified.

TYPE CR TROLLEY FROGS

15 Degrees

Malleable Iron Body Sherardized With Bronze Approaches

Right-Hand

Round or Grooved Mfrs. No	Size Wire	Lgth. In.	Price Each	Figure 8 Mfrs. No	Size Wire	Lgth. In.	Price Each
293677	00	32	**$9.00**	**293680**	00	32	**$9.00**
293678	000	32	**9.00**	**293681**	000	32	**9.00**
293679	0000	32	**9.00**	**293682**	0000	32	**9.00**
			Left-Hand				
293683	00	32	**9.00**	**293686**	00	32	**9.00**
293684	000	32	**9.00**	**293687**	000	32	**9.00**
293685	0000	32	**9.00**	**293688**	0000	32	**9.00**

WESTINGHOUSE TYPE CR TROLLEY FROGS

TYPE CR TROLLEY FROGS

8 Degrees

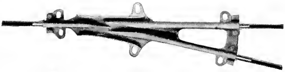
Malleable Iron Body Sherardized With Bronze Approaches

Right-Hand

Mfrs. No.	Size and Type of Wire	Overall Lgth. In.	Net Wt Lb.	Price Each
306090	00 Rd. or Gvd.	32	13¾	**$9.00**
306091	000 Rd. or Gvd.	32	13¾	**9.00**
306092	0000 Rd. or Gvd.	32	13¾	**9.00**
306093	00 Fig. 8	32	13¾	**9.00**
306094	000 Fig. 8	32	13¾	**9.00**
306095	0000 Fig. 8	32	13¾	**9.00**
	Left-Hand			
306096	00 Rd. or Gvd.	32	13¾	**9.00**
306097	000 Rd. or Gvd.	32	13¾	**9.00**
306098	0000 Rd. or Gvd.	32	13¾	**9.00**
306099	00 Fig. 8	32	13¾	**9.00**
306100	000 Fig. 8	32	13¾	**9.00**
306101	0000 Fig. 8	32	13¾	**9.00**

TYPE CR UNIVERSAL FROGS

12 Degrees



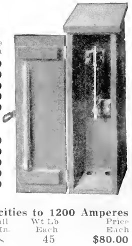
Malleable Iron Body Sherardized, With Set Screw Approaches

Right Hand

Mfrs. No.	Size and Type of Wire	Overall Lgth. In.	Net Wt. Lb.	Price Each
370914	00 Rd. or Gvd.	32	13¾	**$9.00**
370915	000 Rd. or Gvd.	32	13¾	**9.00**
370916	0000 Rd. or Gvd.	32	13¾	**9.00**
	Left Hand			
370917	00 Rd. or Gvd.	32	13¾	**9.00**
370918	000 Rd. or Gvd.	32	13¾	**9.00**
370919	0000 Rd. or Gvd.	32	13¾	**9.00**

LINE SECTION SWITCHES

For Voltages to 750, Capacities to 1200 Amperes



With Box

Mfrs. No.	Cap Amps.	Over. Hght. In.	Wt. Lb. Each	Price Each
272660	200	22½	13	**$16.20**
272662	400	26½	23	**18.80**
272664	600	28½	29	**24.00**
304671	800	27½	32	**28.80**
304672	1200	33¼	40	**37.00**
	Without Box			
272661	200	12⅝	5	**12.80**
272663	400	15¼	10	**14.80**
272665	600	17¾	16	**19.80**
304673	800	15¼	21	**24.00**
304674	1200	18¼	30	**31.60**

For Voltages to 1500, Capacities to 1200 Amperes

Mfrs. No	Capacity Amperes	Overall Hght In.	Wt Lb Each	Price Each
242866	1200	33⅜	45	**$80.00**

WESTINGHOUSE WOOD STRAIN INSULATORS

With Two Eyes at Right Angles

Mfrs. No.	A	B	C	D	E	F	G	H	K
370936	2½	7⅛	⅝	15/16	1	7/16	....	....	....
370937	2½	7⅛	⅝	15/16	1¼	7/16	....	....	....
179475	5	9⅝	⅝	15/16	1	7/16	....	....	....
179476	5	10	¾	1	1¼	½	....	....	....
179480	5	10⅞	¾	1	1¼	½	....	....	....
179488	5	13¼	1	1 5/16	1½	11/16	....	....	....
171794	12	16⅝	⅝	15/16	1	7/16	....	....	....
179477	12	17	¾	1	1¼	½	....	....	....
179489	12	20¼	1	1 5/16	1½	11/16	....	....	....
179478	24	29	¾	1	1¼	½	....	....	....
179490	24	32¼	1	1 5/16	1½	11/16	....	....	....

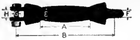
Mfrs. No.	Test Load	Breaking Load	Wt.Lb. Per 100	Price Per 100
370936	....	....	134	**$70.00**
370937	....	....	166	**80.00**
179475	3500	7000	144	**75.00**
179476	5000	10000	188	**85.00**
179480	5000	10000	195	**85.00**
179488	8000	16000	500	**160.00**
171794	3500	7000	170	**90.00**
179477	5000	10000	250	**105.00**
179489	8000	16000	350	**200.00**
179478	5000	10000	300	**145.00**
179490	8000	16000	637	**320.00**

Larger sizes, prices on application.

With Two Eyes in the Same Plane

Mfrs. No.	A	B	C	D	E	F	G	H	K
121730	5	9⅝	⅝	15/16	1	7/16	....	....	....
121731	5	10	¾	1	1¼	½	....	....	....
157458	5	10 5/16	¾	1 5/32	1¼	½	....	....	....

Mfrs. No.	Test Load	Breaking Load	Wt.Lb. Per 100	Price Per 100
121730	3500	7000	144	**$75.00**
121731	5000	10000	188	**85.00**
157458	5000	10000	188	**85.00**



With One Eye and One Clevis Parallel

Mfrs. No.	A	B	C	D	E	F	G	H	K
121732	5	9¾	⅝	15/16	1	7/16	½	13/16	....
121733	5	10	¾	1	1¼	½	½	13/16	....
171072	12	16¾	⅝	15/16	1	7/16	½	13/16	....
121746	12	17	¾	1	1¼	½	½	13/16	....
121747	24	29	¾	1	1¼	½	½	13/16	....

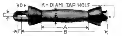
Mfrs. No.	Test Load	Breaking Load	Wt.Lb. Per 100	Price Per 100
121732	3500	7000	154	**$90.00**
121733	5000	10000	232	**100.00**
171072	3500	7000	170	**105.00**
121746	5000	10000	260	**120.00**
121747	5000	10000	325	**160.00**

With One Eye and One Clevis at Right Angles

Mfrs. No.	A	B	C	D	E	F	G	H	K
179481	5	9¾	⅝	15/16	1	7/16	½	13/16	....
179483	5	10	¾	1	1¼	½	½	13/16	....
179482	12	16¾	⅝	15/16	1	7/16	½	13/16	....
179484	12	17	¾	1	1¼	½	½	13/16	....
179485	24	29	¾	1	1¼	½	½	13/16	....

Mfrs. No.	Test Load	Breaking Load	Wt.Lb. Per 100	Price Per 100
179481	3500	7000	154	**$90.00**
179483	5000	10000	232	**100.00**
179482	3500	7000	170	**105.00**
179484	5000	10000	260	**120.00**
179485	5000	10000	325	**160.00**

WESTINGHOUSE WOOD STRAIN INSULATORS

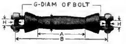


With One Eye and One Tapped Boss

Mfrs. No.	A	B	C	D	E	F	G	H	K
121734	5	9½	⅝	15/16	1	7/16	....	....	⅝–11
123359	5	9 13/16	¾	1	1¼	½	....	....	⅝–11
123360	5	9 13/16	¾	1	1¼	½	....	....	¾–10
121738	12	16 13/16	¾	1	1¼	½	....	....	⅝–11
121739	12	16 13/16	¾	1	1¼	½	....	....	¾–10
121740	24	28 13/16	¾	1	1¼	½	....	....	⅝–11
121741	24	28 13/16	¾	1	1¼	½	....	....	¾–10

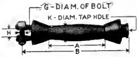
Mfrs. No.	Test Load	Breaking Load	Wt.Lb. Per 100	Price Per 100
121734	3500	7000	141	**$95.00**
123359	5000	10000	220	**105.00**
123360	5000	10000	194	**105.00**
121738	5000	10000	241	**125.00**
121739	5000	10000	241	**125.00**
121740	5000	10000	288	**165.00**
121741	5000	10000	291	**165.00**

With Two Clevises Parallel



Mfrs. No.	A	B	C	D	E	F	G	H	K
125527	5	9⅞	....	....	1	....	½	13/16	....
125529	5	10	....	....	1¼	....	½	13/16	....
125531	12	17	....	....	1¼	....	½	13/16	....

Mfrs. No.	Test Load	Breaking Load	Wt.Lb. Per 100	Price Per 100
125527	3500	7000	200	**$105.00**
125529	5000	10000	253	**115.00**
125531	5000	10000	273	**135.00**

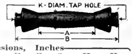


With One Clevis and One Tapped Boss

Mfrs. No.	A	B	C	D	E	F	G	H	K
125539	5	9⅝	....	....	1	....	½	13/16	⅝–11
125541	5	9 13/16	....	....	1¼	....	½	13/16	¾–10
125543	12	16 13/16	....	....	1¼	....	....	....	¾–10

Mfrs. No.	Test Load	Breaking Load	Wt.Lb. Per 100	Price Per 100
125539	3500	7000	157	**$110.00**
125541	5000	10000	235	**120.00**
125543	5000	10000	275	**140.00**

With Two Tapped Bosses



Mfrs. No.	A	B	C	D	E	F	G	H	K
125533	5	9⅜	....	....	1	....	....	....	⅝–11
125535	5	9⅜	....	....	1¼	....	....	....	¾–10
125537	12	16⅝	....	....	1¼	....	....	....	¾–10

Mfrs. No.	Test Load	Breaking Load	Wt.Lb. Per 100	Price Per 100
125533	3500	7000	140	**$115.00**
125535	5000	10000	194	**125.00**
125537	5000	10000	225	**145.00**

TYPE RC ADJUSTABLE

End Castings Sherardized

With Two Eyes

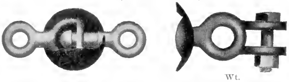
Mfrs. No.	Diam. Inches	Insu. Inches	Adjustment Inches	Wt.Lb. Per 100	Price Per 100
126035	1¼	5	14 to 18	350	**$175.00**
127124	1¼	12	21 to 25	530	**200.00**
157645	1½	5	19¼ to 23¼	700	**300.00**

With Eye and Clevis

Mfrs. No.	Diam. Inches	Insu. Inches	Adjustment Inches	Wt.Lb. Per 100	Price Per 100
165093	1¼	5	19¼ to 23¼	530	**225.00**

WESTINGHOUSE STRAIN INSULATORS

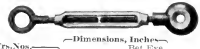
GLOBE—600 Volts



Mfrs. No.	Description	*Size In.	Wt. Lb. Per 100	Price Per 100
92146	Two ½ Inch Eyes	3¾	70	$70.00
92147	Two ⅝ Inch Eyes	4 5/16	105	90.00
97512	With Eye and Clevis	5	100	85.00
97513	With Eye and Clevis	5 11/16	132	105.00

*Distance between centers of eyes or eye and clevis.

TYPE TC INSULATED TURNBUCKLES



Mfrs. Nos. With Cylindrical Eye	Mfrs. Nos. With Oval Eye	Dimensions, Inches Adjust-ment	Dimensions, Inches Diam. Bolts	Dimensions, Inches Bet. Eye Centers When Cont'ed	Appx. Wt. Lb. Per 100	Price Per 100
120867	119919	6	½	13½	220	$220.00
126496	126524	6	⅝	13½	260	270.00
126498	126526	9	½	15½	260	230.00
126500	126528	9	⅝	15½	365	280.00
120869	119921	12	⅝	18½	410	295.00

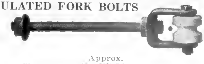
DURO MOLDED STRAIN INSULATORS

750 Volts D. C.

Mfrs. No	Diam. of Body, In.	Wt. Lb. Per 100	Price Per 100
With Two Eyes			
311909	2	115	$98.00
324061	2	120	108.00
324053	2½	215	144.00
324058	2½	220	154.00
With Eye and Clevis			
311911	2	125	108.00
324062	2	130	118.00
324055	2½	240	164.00
324059	2½	245	174.00
With Two Clevises			
324060	2	135	118.00
324057	2½	250	184.00

INSULATED FORK BOLTS

With Porcelain Spool



Mfrs. No.	Size Inches	Approx. Net Wt. Lb. Per 100	Price Per 100
138260	½x12	190	$80.00
138262	⅝x12	255	95.00
138264	⅝x14	270	100.00

BROOKLYN TYPE

750 Volts

Mfrs. No.	Description	Wt. Lb. Per 100	Price Per 100
281780	Standard Size, Sherardized	262	$250.00
281781	Large Size, Sherardized....	513	360.00

SPOOL TYPE STRAIN INSULATORS

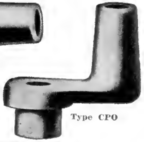
600 VOLTS

Mfrs. No.	Wt. Lb. Per 100	Price Per 100
With Porcelain Spools		
101942	125	$100.00
Porcelain Spool Only		
127061	33	10.00

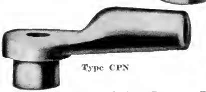
WESTINGHOUSE RAIL BONDS

SOCKET TERMINALS

Type CSN



Type CPO



Type CPN

Standard List Prices Per 100 Terminals

Diameter of Studs	1, 1/0, 2/0 Am. Wire Gauge (B&S)	3/0, 4/0 Am. Wire Gauge (B&S)	250,000 C.M	Over 250,000 C.M. To 350,000 C.M.
½ Inch	$20.00	....	....	....
⅝ Inch	25.00	....	....	....
¾ Inch	30.00	$37.50	$37.50	....
⅞ Inch	35.00	42.50	42.50	$50.00
1 Inch	40.00	47.50	47.50	55.00

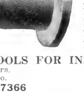
Diameter of Studs	Over 350,000C.M. To 450,000C.M.	Over 450,000C.M. To 550,000C.M.	Over 550,000C.M. To 650,000C.M.	Over 650,000C.M. To 750,000C.M.
½ Inch	....	....	....	....
⅝ Inch	....	....	....	....
¾ Inch	....	....	....	....
⅞ Inch	$55.00	....	....	....
1 Inch	60.00	$75.00	$85.00	$100.00

Drilling—When ordering above specify whether the shanks of the terminals are to be drilled for solid wire or strand.

WESTINGHOUSE CHANNEL PINS

Mfrs. No.	Diam. Pin In.	Diam. O.S. Hole in Rail In.	Price Per 1000	Mfrs. No.	Diam. Pin In.	Diam. O.S. Hole in Rail In.	Price Per 1000
135073	5/16	9/32	$19.50	102249	21/32	⅝	$25.00
102247	⅜	11/32	19.50	186317	¾	23/32	33.00
135074	15/32	7/16	19.50	127101	¾	23/32	33.00
102248	19/32	9/16	25.00	102250	25/32	¾	33.00
181860	19/32	9/16	25.00	186318	29/32	⅞	52.00

COPPER BONDING SLEEVES



Mfrs. No.	Size Bond. Wire B&S Gauge	Out. Diam. Cap In.	Diam. Hole in Rail In.	Price Per 1000
135082	0	19/32	9/16	$114.80
135083	0	21/32	⅝	134.00
135084	00	19/32	9/16	114.80
135085	00	21/32	⅝	134.00
135086	0000	25/32	¾	165.80

TOOLS FOR INSTALLING BONDING SLEEVES

Mfrs. No.	Description	Price Each
137366	Drift Punch	$2.50
137367	Driving Tool	2.50
137368	Upsetting Tool	2.50

HAND TOOLS FOR INSTALLING TWIN STUD TERMINAL BONDS

Mfrs. No.	Description	Wt. Lb.	Price Each
148137	Dulling Punch..........................	3/16	$0.60
148138	Riveting Hammer....................	2½	2.00
255845	Milling Cutter with Handle....	½	.90
255846	Old Style Groove Cutter Without Handle	....	.50

WESTINGHOUSE RAIL BONDS

If a special type bond is desired give full dimensions and reference to some standard type.

CONCEALED RAIL BONDS

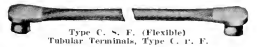
Crown Rail Bond
Type C. S. 01 (Solid Terminals)

Crown Rail Bond
Type C. P. 01 (Pin Terminals)

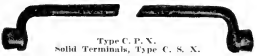
Crown Triplex Rail Bond
Type T. C. P. 1 (Pin Terminals)

United States Rail Bond
Type U. S. 01 (Solid Terminals)

EXPOSED CROWN RAIL BONDS



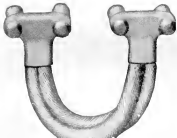
Type C. S. F. (Flexible)
Tubular Terminals, Type C. P. F.



Type C. P. X.
Solid Terminals, Type C. S. X.

Type C. S. S. (Solid)
Tubular Terminals, Type C. P. S.

These bonds are priced according to their straight and extended lengths, terminal diameters and capacities.



Standard Form A

TWIN TERMINAL BONDS

Prices for twin terminal bonds are based on the largest size terminal scheduled for bonds of equivalent capacity and correct length.

Prices for twin terminal bonds are based on the largest size terminal scheduled for bonds of equivalent capacity and correct length.

Form B Twin Stud Terminal Bond

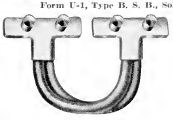
WESTINGHOUSE RAIL BONDS

SOLDERED

Form 1, Type S. B., Soldered Bond

Form C-2, Type B. S. B., Soldered Stud Bond

Form U-1, Type B. S. B., Soldered Stud Bond



Form A, Type B.S.B.

Price and weight of these bonds are based upon straight and extended length and desired capacities, using smallest diameter terminals listed.

FLAME WELD BONDS—ALL COPPER

T-Head Terminal

Type FCA-2, Double Conductor

Type FCA-1, Single Conductor

Type FCA-2 Double Conductor

FLAME WELD BONDS—STEEL TERMINALS

T-Head Terminal
Type FSA-2, Double Conductor
Type FSA-1, Single Conductor
Type FUA, Flat Ribbon Conductor

Prices and weights of these bonds are based upon the smallest terminal listed for the capacity of bond desired and upon the overall straight and extended length.

ARCWELD RAIL BONDS, STEEL WELDING FACE

T-Head Terminal
Type AA-1, Single Conductor
Type AA-2, Double Conductor

L-Head Terminal
Types A.B.-3, A.B.-4

Long Terminal
Types A.F.-1, A.S.-1
Types A.F.-2, A.S.-2

Prices and weights are based upon the overall straight and extended lengths and the smallest diameter terminals.

MINE BONDS—TYPE RM-1

Prices and weights are based on the distance between centers of terminals, diameter of terminals and capacities.

WESTINGHOUSE BONDING TOOLS AND APPLIANCES

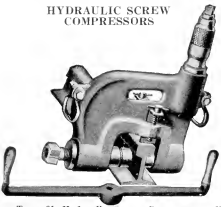
HAND SCREW COMPRESSORS

Cat. No.	Approx Wt Lb.
38	28
40	65
42	80
44	105
46	140
48	165

Cat. No. — Style and Size of Rail

38 Small Mine Rails Up to 3½ Inch, 40 Pounds, Extreme 45 Pounds
40 T-Rails Up to 80 Pounds, 5⅛ Inch and Under
42 T-Rail Up to 6¼ Inch
44 T and Girder Rails Up to 7¼ Inch
46 T and Girder Rails Up to 9 Inch
48 T and Girder Rails Up to 9 Inch—Designed for Rails Having Extra Large Head

HYDRAULIC SCREW COMPRESSORS



Type 61 Hydraulic Screw Compressor

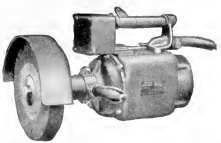
Mfrs. No.	Style and Size of Rail	Wt Lb. Including Handle
305742	T-Rail Up to and Including 120 Pounds, 6¼ Inches and Under	115
305743	Girder or T-Rails, 7½ Inches and Under	160
305744	Girder and T-Rails to 9 Inches	190
305745	Base of Rail	58

NO. 3 BOYER ANGLE GEAR

Mfrs. No. 148130
Weight, 13 Pounds Each
Description—No. 3 Boyer Angle Gear

DUNTLEY PORTABLE ELECTRIC GRINDER

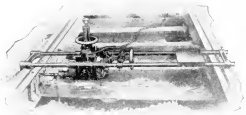
For 460 to 600 Volt D. C. Circuits



Mfrs. No.	Voltage	Net Wt Lb	Price Each
148169	250	28	$184.00
148169	600	28	210.00

WESTINGHOUSE BONDING TOOLS AND APPLIANCES

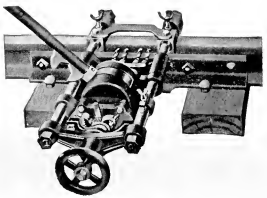
DUNTLEY ELECTRIC DRILL



Duntley Electric Drill with Adjustable Frame

Mfrs. No.	Drills Hole, in.	Price Each 250 Volts	Price Each 600 Volts
	For Small Mine Rails		
305746	⅞	$480.00	$500.00
	For Ordinary Railway Work		
305747	1	580.00	610.00
	For Heavy Duty		
305748	1½	730.00	760.00

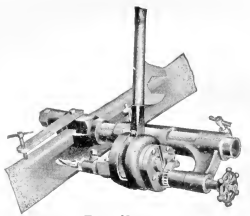
HAND-OPERATED DOUBLE-TWIN SPINDLE DRILL



Type No. 22

Mfrs. No.	Description	Net Wt Lb.	Price Each
187193	Type No. 22	125	$720.00

HAND-OPERATED SINGLE-SPINDLE DRILL



Type No. 21

Mfrs. No.	Description	Net Wt Lb	Price Each
305749	Type No. 21	100	$520.00

HEMINGRAY GLASS INSULATORS

PONY

Mfrs. No.	Std. Pkg.	Wt. Lbs. Per Bbl.	Price per 1000
9	400	248	**$92.90**

Dimensions: Hght. 3¾ inches, diam. 2¼ inches, groove ⅜ inch.

No. 9

EXCHANGE LINE

Mfrs. No.	Std. Pkg.	Wt. Lbs. Per Bbl.	Price per 1000
10	350	245	**$97.15**

Dimensions: Hght. 3¼ inches, diam. 2½ inches, groove 7/16 inch.

No. 10

PONY DOUBLE GROOVE

Mfrs. No	Std. Pkg.	Wt. Lbs. Per Bbl.	Price per 1000
12	400	279	**$92.90**

Dimensions: Hght. 3⅝ inches, diam. 2⅜ inches, groove ⅜ inch.

No. 12

PONY NATIONAL

Mfrs. No.	Std. Pkg.	Wt. Lbs. Per Bbl.	Price per 1000
13	300	245	**$98.50**

Dimensions: Hght. 3¾ inches, diam. 2½ inches, groove ⅜ inch.

No. 13

PONY DEEP GROOVE
Double Petticoat

Mfrs. No.	Std. Pkg.	Wt. Lbs. Per Bbl.	Price per 1000
14	300	246	**$108.50**

Dimensions: Hght. 3⅜ inches, diam. 2⅞ inches, groove ⅜ inch.

No. 14

WESTERN UNION

Mfrs. No.	Std. Pkg.	Wt. Lbs. Per Bbl.	Price per 1000
15	200	290	**$142.15**

Dimensions: Hght. 4⅜ inches, diam. 2¾ inches, groove ⅜ inch.

No. 15

LONG DISTANCE

Mfrs. No.	Std. Pkg.	Wt. Lbs. Per Bbl.	Price per 1000
16	275	297	**$114.50**

Dimensions: Hght. 4 inches, diam. 2⅝ inches, groove ⅜ inch.

No. 16

DEEP GROOVE

Mfrs. No.	Std. Pkg	Wt. Lbs. Per Bbl.	Price per 1000
18	250	300	**$142.15**

Dimensions: Hght. 4 inches, diam. 2⅞ inches, groove ½ inch.

No. 18

HEMINGRAY GLASS INSULATORS

DEEP GROOVE
Double Petticoat

Mfrs. No.	Lkg. Dist. In.	Wet Arc. Dist. In.	Std. Pkg.	Wt. Lbs. Per Bbl.	Price per 1000
19	4⅛	1	200	252	**$142.15**

Dimensions: Hght. 3⅞ inches, diam. 3¼ inches, groove ½ inch.

No. 19

STREET RAILWAY OR EXTRA DEEP GROOVE
Double Petticoat

Mfrs. No	Lkg. Dist. In	Wet Arc. Dist. In.	Std. Pkg.	Wt. Lbs. Per Bbl.	Price per 1000
20	4⅜	1	200	263	**$142.15**

Dimensions: Hght. 4 inches, diam. 3¼ inches, groove ¾ inch.

No. 20

STANDARD WESTERN UNION
Double Petticoat

Mfrs. No.	Lkg. Dist. In.	Wet Arc. Dist. In.	Std. Pkg.	Wt. Lbs. Per Bbl.	Price per 1000
21	5½	1	200	280	**$158.75**

Dimensions: Hght. 4⅜ inches, diam. 3¼ inches, groove ⅜ inch.

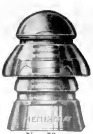
No. 21

NEW WESTERN UNION STANDARD
Double Petticoat

Mfrs. No.	Lkg. Dist. In.	Wet Arc. Dist. In.	Std. Pkg.	Wt. Lbs. Per Bbl.	Price per 1000
42	6½	1⅛	175	306	**$158.75**

Dimensions: Hght. 4⅛ inches, diam. 3¾ inches, groove 5/16 inch.

No. 42



TRANSPOSITION TWO PIECE

Mfrs. No.	Std. Pkg.	Wt. Lbs. Per Bbl.	Price per 1000
50	125	225	**$300.65**

Dimensions: Hght. 5 inches, diam. 3¼ inches, groove ⅜ inch.

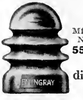
No. 50

TRANSPOSITION

Mfrs. No.	Std. Pkg.	Wt. Lbs. Per Bbl.	Price per 1000
53	100	235	**$245.90**

Dimensions: Hght. 4½ inches, diam. 4 inches, groove ⅜ inch.

No. 53



TRANSPOSITION

Mfrs. No.	Std. Pkg.	Wt. Lbs. Per Bbl.	Price per 1000
55	125	260	**$245.90**

Dimensions: Hght. 4½ inches, diam. 3¼ inches, groove 5/16 inch.

No. 55

HEMINGRAY GLASS INSULATORS

No. 103

KNOB

Mfrs. No.	Std. Pkg.	Wt.Lbs. Per Bbl.	Price Per 1000
103	500	230	**$102.60**

Dimensions: Hght. 2 inches, diam. 2 inches, groove ⅝ inch.

KNOB

Mfrs. No.	Std. Pkg.	Wt.Lbs Per Bbl.	Price Per 1000
107	500	230	**$102.60**

Dimensions: Hght. 1⅞ inches, diam. 2 inches, groove ¾ inch.

No. 107

No. 95

MINE

Mfrs. No.	Std. Pkg.	Wt.Lbs. Per Bbl.	Price Per 1000
95	200	295	**$288.25**

Dimensions: Hght. 3½ inches, diam. 2⅞ inches, groove ⅝ inch.

SPAN WIRE

Mfrs. No.	Crushing Strength Lbs.	Std. Pkg.	Wt.Lbs. Per Bbl.	Price Per 1000
90	4912	500	360	**$320.85**

Dimensions: Hght. 2⅜ inches, diam. 2¼ inches, groove ⅜ inch.

91	5910	250	315	**480.25**

Dimensions: Hght. 3⅛ inches, diam. 2¾ inches, groove ½ inch.

No. 90

No. 60

CABLE

Mfrs. No.	Std. Pkg.	Wt Lbs. Per Bbl.	Price Per 1000
60	100	225	**$245.50**

Dimensions: Hght. 5 inches, diam. 3¼ inches, groove 1½ inches.

60A	**100**	225	**$245.50**

Dimensions: Hght. 5 inches, diam. 3¼ inches, groove 2 inches.

CABLE

Mfrs. No.	Lkg Dist In	Wet Arc Dist In.	Price Per 1000
62	5⅜	1⅛	**$245.50**

Voltages: Line 6600, Dry Test 49000, Wet Test 21000.

Standard package 125. Weight per barrel, 240 lbs.

No. 62

No. 63

CABLE

Mfrs. No.	Lkg.Dist. In.	Wet Arc. Dist.,In.	Price Per 1000
63	7¾	1½	**$399.00**

Voltages: Line 7500, Dry Test 55000, Wet Test 26000.

Standard package 65. Weight per barrel, 245 lbs.

HEMINGRAY GLASS INSULATORS

No. 61

CABLE

Mfrs. No.	Std. Pkg.	Wt.Lbs. Per Bbl.	Price Per 1000
61	200	255	**$215.10**

Dimensions: Hght. 3¾ inches, diam. 3¼ inches, groove 1 inch.

HIGH TENSION

HIGH VOLTAGE

Line voltage 10,000, dry test 50,000 and wet test 29,000 volts.

No. 71

Mfrs. No.	Lkg Dist. In.	Wet Arc. Dist., In.	Std. Pkg.	Wt.Lbs. Per Bbl.	Price Per 1000
71	7	1¾	100	261	**$203.25**

No. 72

HIGH VOLTAGE

Line voltage 11,000, dry test 62,000 and wet test 30,000 volts.

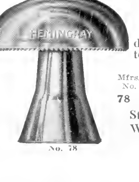
Mfrs. No.	Lkg.Dist. In.	Wet Arc. Dist., In.	Std. Pkg.	Wt.Lbs. Per Bbl.	Price Per 1000
72	8¾	1¾	100	260	**$203.25**

MUNCIE

No. 75, line voltage 15,000, dry test 90,000 and wet test 40,000 volts. No. 76, line voltage 20,000, dry test 11,000 and wet test 48,000 volts.

No. 75

Mfrs. No.	Lkg.Dist. In.	Wet Arc. Dist., In.	Std. Pkg.	Wt.Lbs. Per Bbl.	Price Per 1000
75	12	2⅞	30	185	**$476.25**
76	17½	3⅝	16	190	**793.25**


No. 78

MUNCIE

Line voltage 33,000, dry test 140,000 and wet test 77,000 volts.

Mfrs. No.	Lkg. Dist. In.	Wet Arc. Dist.,In.	Price Per 1000
78	28½	7	**$1370.00**

Standard Package, 8.
Wt. Lbs. Per Bbl., 160.

G. P. PORCELAIN TUBES
STANDARD—UNGLAZED

5/16 In. Hole, 9/16 In. Outside Diam.

Lgth In.	Std Pkg	Wt Std. Pkg Gross	Per 1000 Pieces
½	15,000	375	$16.00
1	11,000	375	17.00
1½	9,000	375	18.00
2	7,000	375	19.00
2½	6,000	360	21.00
3	5,400	335	23.00
4	3,900	315	30.00
5	3,200	330	39.00
6	3,000	330	50.00
8	2,200	340	90.00
10	1,700	335	167.00
12	1,200	340	244.00
14	1,000	335	321.00
16	800	340	398.00
18	500	340	475.00
20	450	340	552.00
24	400	340	706.00

3/8 In. Hole, 11/16 In. Outside Diam.

Lgth In.	Std Pkg	Wt Std. Pkg Gross	Per 1000 Pieces
½	12,500	375	20.00
1	9,500	375	21.00
1½	8,000	375	22.00
2	7,000	370	24.00
2½	5,000	350	27.00
3	3,800	340	30.00
4	2,900	340	40.00
5	2,500	340	50.00
6	2,000	335	60.00
8	1,600	340	105.00
10	1,200	320	186.00
12	1,000	305	267.00
14	800	200	348.00
16	700	300	429.00
18	450	290	510.00
20	400	290	591.00
24	400	300	753.00

½ In. Hole, 13/16 In. Outside Diam.

Lgth In.	Std Pkg	Wt Std. Pkg Gross	Per 1000 Pieces
1	8,500	360	27.00
1½	7,500	360	28.00
2	5,000	355	30.00
2½	4,000	350	33.00
3	2,700	340	37.00
4	2,000	335	48.00
5	1,700	340	60.00
6	1,500	340	72.00
8	1,200	335	130.00
10	1,000	335	215.00
12	800	340	300.00
14	700	320	385.00
16	550	300	470.00
18	475	250	555.00
20	300	270	640.00
24	300	260	810.00

5/8 In. Hole, 15/16 In. Outside Diam.

Lgth In.	Std Pkg	Wt Std. Pkg Gross	Per 1000 Pieces
1	4.500	380	40.00
1½	3,200	375	46.00
2	2,500	355	52.00
2½	2,000	325	58.00
3	1,800	320	65.00
4	1,450	325	80.00
5	1,200	320	95.00
6	1,000	305	110.00
8	700	275	140.00
10	500	255	250.00
12	375	220	340.00
14	310	215	430.00
16	250	205	520.00
18	200	205	610.00
20	160	175	700.00
24	160	195	880.00

¾ In. Hole, 1 3/16 In. Outside Diam.

Lgth In.	Std Pkg	Wt Std. Pkg Gross	Per 1000 Pieces
1	3,700	330	$60.00
1½	2,500	320	70.00
2	1,800	310	80.00
2½	1,500	295	90.00
3	1,250	285	100.00
4	850	250	116.00
5	700	255	132.00
6	600	255	148.00
8	450	245	180.00
10	350	240	290.00
12	325	240	390.00
14	250	230	492.00
16	185	205	594.00
18	160	200	696.00
20	125	180	798.00
24	125	210	1,000.00

1 In. Hole, 1 7/16 In. Outside Diam.

Lgth In.	Std Pkg	Wt Std. Pkg Gross	Per 1000 Pieces
1	2,000	350	100.00
1½	1,500	360	112.00
2	1,100	345	125.00
2½	900	330	138.00
3	750	315	150.00
4	600	300	168.00
5	500	290	186.00
6	400	280	204.00
8	325	290	240.00
10	245	270	375.00
12	190	255	500.00
14	150	230	625.00
16	140	230	750.00
18	110	210	875.00
20	85	195	1,000.00
24	85	215	1,250.00

1¼ In. Hole, 1 13/16 In. Outside Diam.

Lgth In.	Std Pkg	Wt Std. Pkg Gross	Per 1000 Pieces
2½	525	320	190.00
3	425	310	210.00
4	360	310	240.00
5	325	305	272.00
6	250	300	306.00
8	180	290	376.00
10	140	265	450.00
12	120	265	700.00
14	100	255	870.00
16	85	175	1,040.00
18	70	235	1,210.00
20	55	215	1,380.00
24	55	240	1,720.00

1½ In. Hole, 2 3/16 In. Outside Diam.

Lgth In.	Std Pkg	Wt Std. Pkg Gross	Per 1000 Pieces
2½	350	325	255.00
3	300	315	280.00
4	250	305	320.00
5	225	305	360.00
6	180	305	405.00
8	140	300	490.00
10	110	300	580.00
12	90	280	1,025.00
14	75	275	1,235.00
16	65	265	1,445.00
18	55	250	1,660.00
20	40	220	1,875.00
24	40	250	2,300.00

1¾ In. Hole, 2 9/16 In. Outside Diam.

Lgth In.	Std Pkg	Wt Std. Pkg Gross	Per 1000 Pieces
2½	250	380	340.00
3	225	370	370.00
4	200	360	445.00
5	175	340	520.00
6	150	320	600.00
8	100	300	750.00
10	80	290	900.00
12	70	280	1,600.00
14	90	260	1,900.00
16	60	255	2,200.00
18	50	250	2,500.00
20	50	240	2,800.00
24	50	250	3,400.00

2 In. Hole, 2 15/16 In. Outside Diam.

Lgth In.	Std Pkg	Wt Std. Pkg Gross	Per 1000 Pieces
2½	....	......	$460.00
3	....	......	500.00
4	....	......	630.00
5	....	......	760.00
6	....	......	900.00
8	....	......	1,160.00
10	....	......	1,430.00
12	....	......	1,700.00
14	....	......	2,800.00
16	....	......	3.200.00
18	....	......	3,600.00
20	....	......	4,000.00
24	....	......	4,800.00

2¼ In. Hole, 3 5/16 In. Outside Diam.

Lgth In.	Std Pkg	Wt Std. Pkg Gross	Per 1000 Pieces
2½	....	......	590.00
3	....	......	640.00
4	....	......	835.00
5	....	......	1,030.00
6	....	......	1,225.00
8	....	......	1,615.00
10	....	......	2,005.00
12	....	......	2,400.00
14	....	......	4,000.00
16	....	......	4,520.00
18	....	......	5,040.00
20	....	......	5,560.00
24	....	......	6,600.00

2½ In. Hole, 3 11/16 In. Outside Diam.

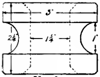
Lgth In.	Std Pkg	Wt Std. Pkg Gross	Per 1000 Pieces
2½	....	......	740.00
3	....	......	800.00
4	....	......	1,090.00
5	....	......	1,380.00
6	....	......	1,670.00
8	....	......	2,250.00
10	....	......	2,830.00
12	....	......	3,420.00
14	....	......	5,600.00
16	....	......	6,240.00
18	....	......	6,880.00
20	....	......	7,520.00
24	....	......	8,800.00

Note:—Tubes larger than 1¾ by 24 inches 50 in a standard package.

For glazed tubes, add 50% to net prices. For split floor and cross-over solid tubes, multiply list by 6. For solid floor, curved and curved end tubes, multiply list by 3. Cross-over split tubes, multiply list by 12. Split regular tubes, multiply list by 10. Headless tubes above 8 inches long, multiply list by 4. Headless tubes 8 inches long and under, same list as Standard tubes. All measurements should be computed over all except split tubes, which should be taken under head, and cross-over tubes, which should be taken between heads. For list price on solid and split floor tubes, add 3 inches to length of standard tube.

G. P. PORCELAIN INSULATORS

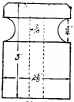
Moulded from high grade porcelain, surfaee eovered with a glassy coating that is impervious to moisture. All insulators eonform with all requirements of Underwriters' Board.



No. 0

Mfrs. No.	Hgt. In.	Dia. In.	Hole In.	Groove In.	Price Per 1000
0	2¼	3	1¼	1	**$300.00**

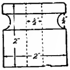
Quantity per barrel, 450; weight per barrel, 400 lbs.



No. 1

Mfrs. No.	Hgt. In.	Dia. In.	Hole In.	Groove In.	Price Per 1000
1	2	2⅛	7/16	¾	**$182.00**

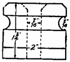
Quantity per barrel, 690; weight per barrel, 480 lbs.



No. 2

Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
2	2	2	½	½	**$120.00**

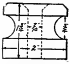
Quantity per barrel, 1050; weight per barrel, 480 lbs.



No. 3

Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
3	1¾	2	7/16	7/16	**$110.00**

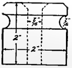
Quantity per barrel, 1150; weight per barrel, 480 lbs.



No. 3 WG

Mfrs. No	Hgt. In.	Dia. In.	Hole In.	Groove In.	Price Per 1000
3-WG	1¾	2	7/16	¾	**$110.00**

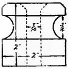
Quantity per barrel, 1150; weight per barrel, 460 lbs.



No. 3½

Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
3½	2	2	7/16	7/16	**$110.00**

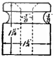
Quantity per barrel, 1000; weight per barrel, 460 lbs.



No. 3½ WG

Mfrs. No.	Hgt In.	Dia. In.	Hole In.	Groove In.	Price Per 1000
3½-WG	2	2	7/16	¾	**$110.00**

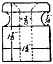
Quantity per barrel, 1000; weight per barrel, 450 lbs.



No. 4

Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
4	1 11/16	1½	⅜	⅜	**$55.00**

Quantity per barrel, 2200; weight per barrel, 490 lbs.



No. 4½

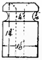
Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
4½	1⅞	1⅜	⅜	⅜	**$55.00**

Quantity per barrel, 1900; weight per barrel, 450 lbs.

No. 5

Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
5	1¼	1	¼	⅜	**$29.00**

Quantity per barrel, 6500; weight per barrel, 480 lbs.



No. 5½

Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
5½	1 9/16	1⅛	¼	5/16	**$38.00**

Quantity per barrel, 3800; weight per barrel, 480 lbs.

G. P. PORCELAIN INSULATORS

Moulded from high grade poreelain, surfaee eovered with a glassy eoating that is impervious to moisture. All insulators eonform with all requirements of Underwriters' Board.

No. 6

Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
6	⅞	13/16	7/32	¼	**$22.00**

Quantity per barrel, 13,000; weight per barrel, 490 lbs.

No. 7

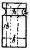
Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
7	¾	⅞	¼	7/16	**$26.00**

Quantity per half barrel, 9000; weight per barrel, 295 lbs.

No. 8

Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
8	15/16	1	¼	5/16	**$26.00**

Quantity per barrel, 8000; weight per barrel, 475 lbs.



No. 9

Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
9	1⅛	⅝	3/16	3/16	**$25.00**

Quantity per barrel, 12,000; weight per barrel, 475 lbs.

No. 11

M'frs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
11	11/16	1⅛	¼	½	**$45.00**

Quantity per barrel, 9000; weight per barrel, 480 lbs.

No. 12

Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
12	13/16	1⅜	5/16	9/16	**$58.00**

Quantity per barrel, 8000; weight per barrel, 460 lbs.

No. 13

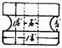
Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
13	¾	1 5/16	⅛	⅝	**$81.00**

Quantity per barrel, 5500; weight per barrel, 450 lbs.

No. 14

Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
14	¾	⅞	¼	3/16	**$26.00**

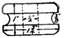
Quantity per barrel, 13,000; weight per barrel, 480 lbs.



No. 15

Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
15	1 5/16	1¾	7/16	½	**$76.00**

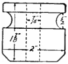
Quantity per barrel, 2500; weight per barrel, 480 lbs.



No. 16

Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
16	1	1¾	½	⅜	**$75.00**

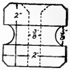
Quantity per barrel, 1800; weight per barrel, 460 lbs.



No. 19

Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
19	1⅞	2	7/16	½	**$116.00**

Quantity per barrel, 1000; weight per barrel, 475 lbs.



No. 20

Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
20	2	2	⅜	⅝	**$130.00**

Quantity per barrel, 1050; weight per barrel, 460 lbs.

G. P. PORCELAIN INSULATORS

Molded from high grade porcelain, surface covered with a glassy coating that is impervious to moisture. All insulators conform with all requirements of Underwriters' Board.

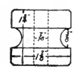
No. 23

Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
23	1½	1½	⅜	1	**$76.00**

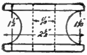
Quantity per barrel, 2400; weight per barrel, 450 lbs.

Mfrs. No.	Hgt. In.	Dia. In.	Hole In.	Groove In.	Price Per 1000
24	1¾	1⅞	$\frac{7}{16}$	⅝	**$102.00**

Quantity per barrel, 1200; weight per barrel, 475 lbs.



No. 24



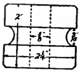
No. 25

Mfrs. No.	Hgt. In.	Dia. In.	Hole In.	Groove In.	Price Per 1000
25	1½	2½	$\frac{11}{16}$	1$\frac{1}{16}$	**$142.00**

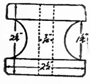
Quantity per barrel, 1000; weight per barrel, 460 lbs.

Mfrs. No.	Hgt. In.	Dia. In.	Hole In.	Groove In.	Price Per 1000
26	2	2¼	⅝	$\frac{9}{16}$	**$142.00**

Quantity per barrel, 800; weight, per barrel, 475 lbs.



No. 26



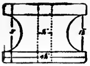
No. 29

Mfrs. No.	Hgt. In.	Dia. In.	Hole In.	Groove In.	Price Per 1000
29	2⅜	2½	$\frac{7}{16}$	1¼	**$200.00**

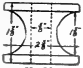
Quantity per barrel, 675; weight per barrel, 460 lbs.

Mfrs. No.	Hgt. In.	Dia. In.	Hole In.	Groove In.	Price Per 1000
32	3	4$\frac{3}{16}$	$\frac{11}{16}$	1⅞	**$655.00**

Quantity per barrel, 150; weight per barrel, 460 lbs.



No. 32



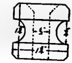
No. 34

Mfrs. No.	Hgt. In.	Dia. In.	Hole In.	Groove In.	Price Per 1000
34	1⅞	2⅜	⅝	1⅜	**$176.00**

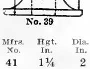
Quantity per barrel, 700; weight, per barrel, 400 lbs.

Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
36	1¾	1¾	½	¾	**$90.00**

Quantity per barrel, 1600; weight per barrel, 450 lbs.



No. 36



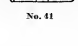
No. 39

Mfrs. No.	Hgt. In.	Dia. In.	Hole In.	Groove In.	Price Per 1000
39	1¾	2½	¾	1⅜	**$158.00**

Quantity per barrel, 700; weight per barrel, 425 lbs.

Mfrs. No.	Hgt. In.	Dia. In.	Hole In.	Groove In.	Price Per 1000
41	1¼	2	⅜	½	**$95.00**

Quantity per barrel, 1500; weight per barrel, 450 lbs



No. 41

G. P. PORCELAIN INSULATORS

NO. 1849—SPLIT—New Code

Size Wire	12–14
Height, In.	1¾
Diameter, In.	1$\frac{3}{16}$
Standard Package	3800
Std. Pkg., Wt., Lbs.	480
Price Per 1000	**$52.00**

G. P. SPLIT—New Code—One Wire

Size Wire	12–14
Height, In.	1¾
Diameter, In.	1$\frac{3}{16}$
Standard Package	3800
Standard Package, Weight, Lbs.	480
Price Per 1000	**$52.00**

GRIP-IT—SELF-LOCATING CAP New Code

Size Wire	12–14
Height, In.	1¾
Diameter, In.	1$\frac{3}{16}$
Standard Package	3500
Std. Pkg., Wt., Lbs.	490
Price Per 1000	**$52.00**

SQUARE REVERSIBLE—New Code

Mfrs No.	**55½**	**45½**	**35½**
Size Wire	12–14	8–10	4–6
Height, In.	1⅝	2¼	2½
Diam., In.	1⅛	1½	2
Std. Pkg.	3700	2000	900
Std. Pkg., Wt., Lbs.	500	500	500
Price, 1000	**$75.00**	**$110.00**	**$160.00**

ROUND REVERSIBLE—New Code

Mfrs. No.	**101**	**102**	**103**
Size Wire	12–14	8–10	4–6
Height, In.	1¾	1⅞	2
Diam., In.	1$\frac{3}{16}$	1½	2
Std. Pkg.	3800	2700	900
Std. Pkg., Wt., Lbs.	500	500	500
Price 1000	**$52.00**	**$110.00**	**$160.00**

ROUND REVERSIBLE—BUCKEYE New Code

Mfrs. No.	**1914**	**1916**
Size Wire	12–14	12–14
Height, In.	1¾	1¾
Diameter, In.	1$\frac{3}{16}$	1¼
Standard Package	3800	2500
Std. Pkg., Wt., Lbs.	500	490
Price Per 1000	**$56.00**	**$62.00**

G. P. NAIL-IT—New Code

Thick nail-heads; heavy porcelain cap.

Size Wire	12–14
Height, In.	1¾
Diameter, In.	1$\frac{3}{16}$
Standard Package	2900
Standard Package, Weight, Lbs.	470
Price Per 1000	**$70.00**

Also furnished 500 in a box; 8 boxes to a standard package.

LARGE SIZE—FOUR GROOVES

Mfrs. No.	**9419**	**9420**
Size Wire	8–10	4–6
Height, In.	1⅞	2⅛
Diameter, In.	1½	1$\frac{15}{16}$
Standard Package	2000	1000
Std. Pkg., Wt., Lbs.	500	500
Price Per 1000	**$87.00**	**$142.00**

G. P. PORCELAIN INSULATORS

NO. 5½ NAIL-IT—SOLID

New Code

Size Wire	**10–14**
Height, In.	1¾
Diameter, In.	1 3/16
Standard Package	3500
Standard Package, Weight, Lbs.	470
Price Per 1000	**$56.00**

SCREW-IT—New Code

With No. 10, 2½-inch screw.

Size Wire	12–14
Height, In.	1¾
Diameter, In.	1 3/16
Standard Package	2800
Standard Package, Weight, Lbs.	500
Price Per 1000	**$90.00**

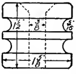
Also furnished 500 in a box; 8 boxes to a standard package.

DETROIT SCREW-IT

With No. 10, 2½-inch screw.

Size Wire	**12–14**
Height, In.	1¾
Diameter, In.	1¼
Standard Package	2600
Standard Package, Weight Lbs.	490
Price Per 1000	**$100.00**

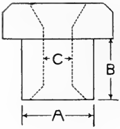
PORCELAIN TELEPHONE KNOBS



Hgt. In.	Diam. In.	Hole In.	Gr'v's In.	Number Per Bbl.	Price Per 1000
Two Groove					
1 7/16	1⅝	⅜	5/16	2200	**$88.00**
1 11/16	1½	⅜	5/16	2200	**62.00**
Four Groove					
2¼	1¾	7/16	5/16	1125	**150.00**

Weight Standard Package, 440 Lbs.

G. P. PORCELAIN BUSHINGS



BATTERY BUSHINGS

Mfrs. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 1000
400	15,000	400	**$62.00**
401	9,000	375	**57.00**
402	5,000	325	**80.00**
403	5,000	350	**70.00**

Dimensions of Battery Bushings

M'frs. No	Dimen., In. A	B	C	M'frs. No.	Dimen., In. A	B	C
400	½	9/16	¼	**402**	11/16	1⅛	⅜
401	¾	⅝	5/16	**403**	¾	1	3/16

G. P. PORCELAIN CLEATS

V Groove Single-Wire

No. 4 holds wires 16-8.
No. 5 holds wires 8-2.
No. 6 holds wires 000-250,000.
No. 7 holds wires 6-2.
No. 8 holds cables 300,000-500,000.
No. 8½ holds cables 600,000-1,000,000.
No. 9 holds cables 1,250,000-1,750,000.

Mfrs. No.	G. P. Regular Std. Pkg	Wt Lbs. Std. Pkg.	Price Per 1000	STYLE A Wire 1 In. Under Groove Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 1000
4	3000	500	**$74.00**	2300	500	**$80.00**
5	1000	490	**110.00**	1350	490	**120.00**
6	700	480	**180.00**	600	490	**196.00**
7	1500	490	**110.00**	1300	490	**120.00**
8	500	480	....	500	480	**330.00**
8½	400	480	....	400	480	**410.00**
9	200	480	....	250	480	**500.00**

G. P. PORCELAIN CLEATS

ONE WIRE B. & D. ROUND GROOVE

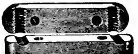
Style A cleats have wire groove 1 inch from surface wired. Style B have Style A top and bottom. Standard package for Style B is two-thirds of Style A. Round groove is standard. V groove is furnished if so specified.

Mfrs. No.	Lgth. In.	Wdth. In.	Size Wire	Size Groove Wire Inch
1	1 15/16	13/16	14-6	⅛ x ⅜
1½	2¼	15/16	6-2	3/16 x 7/16
2	2¼	1 1/16	2-0	⅜ x ½
2½	2 11/16	1 3/16	0-3-0	½ x ⅝
3	3⅛	1¼	3-0-200,000 C.M.	9/16 x ¾
3¼	3¼	1 5/16	*	....
3½	3 3/16	1 5/16	200,000- 500,000 C.M. 500,000-1,000,000 C.M.	¾ x 1 1 x 1⅜
4	3¾	1⅜	800,000-1,250,000 C.M.	1⅜ x 1⅝
4¼	5	1⅞	800,000-1,250,000 C.M.	1⅜ x 1⅝
4½	5 7/16	2	1,000,000-2,000,000 C.M.	1 7/16 x 1 15/16

*Especially adapted to take a No. 10 duplex parallel conduit cable, ⅝x⅞ inches.

Mfrs. No.	Std. Pkg. Reg.	Std. Pkg. Style A	Wt. Per Bbl. Reg.	Wt. Per Bbl. Style A	Price Per 1000 Reg.	Style A	Style B
1	3000	2250	490	500	**$74.00**	**$80.00**	**$86.00**
1½	2200	1650	490	500	**96.00**	**108.00**	**120.00**
2	1000	1350	490	490	**110.00**	**120.00**	**140.00**
2½	1000	850	500	500	**140.00**	**156.00**	**172.00**
3	700	600	480	490	**180.00**	**196.00**	**212.00**
3¼	....	700	......	490	....	**260.00**	**260.00**
3½	....	550	......	480	....	**260.00**	**260.00**
4	....	400	......	475	....	**330.00**	**330.00**
4¼	....	200	......	500	....	**500.00**	**500.00**
4½	....	165	......	500	....	**620.00**	**620.00**

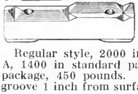
STANDARD TWO AND THREE WIRE



Mfrs. No.	Size Wire	Hgt.	Wth.	Lth.	Grve.	Std. Pkg.	Price Per M Pair
Two-Wire							
334-UG	12-14	1⅛	⅝	3⅜	3/16	2000	**$52.00**
334-G	12-14	1⅛	⅝	3⅜	3/16	2000	**90.00**
335-UG	12-14	1¼	¾	3⅜	3/16	1600	**60.00**
335-G	12-14	1¼	¾	3⅜	3/16	1600	**100.00**
350-UG	8-10	1½	¾	3⅝	¼	1800	**88.00**
350-G	8-10	1½	¾	3⅝	¼	1800	**150.00**
Three-Wire							
337-UG	12-14	1⅛	⅝	3⅜	3/16	2400	**52.00**
337-G	12-14	1⅛	⅝	3⅜	3/16	2400	**90.00**
335-UG	12-14	1¼	¾	3⅜	3/16	1600	**60.00**
335-G	12-14	1¼	¾	3⅜	3/16	1600	**100.00**
350-UG	8-10	1½	¾	3⅝	¼	1800	**88.00**
350-G	8-10	1½	¾	3⅝	¼	1800	**150.00**

UG—Unglazed. G—Glazed.
Weight of Standard Package is 500 pounds.

G. P. NO. 9172—THREE WIRE



For 8-12 Wire

Mfrs. No.	Price Per 1000 Glazed	Unglazed
Regular		
9172	**$120.00**	**$70.00**
Style A		
9172	**180.00**	**105.00**

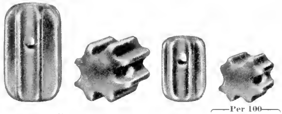
Regular style, 2000 in standard package; Style A, 1400 in standard package. Weight, standard package, 450 pounds. Style A cleats have wire groove 1 inch from surface wired.

WESTINGHOUSE PORCELAIN STRAIN INSULATORS

FOR HIGH-VOLTAGE SERVICE

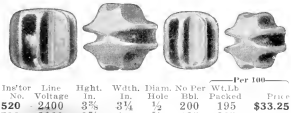
Made of a grade of porcelain much superior to that ordinarily used for such appliances. Sharp corners that would chip easily have been avoided and the shape of the grooves is such that the wires lie naturally in them. Long creepage distance between cables is provided.

TYPE PS—WET PROCESS



Ins'tor No.	Voltage Line	Voltage Dry Arc-Over	Hght. In.	Wdth. In.	Diam. Hole	No. Bbl	Per 100 Wt. Lb. Packed	Price
530	2400	30000	3½	2½	9/16	200	115	**$33.25**
532	4400	40000	5½	3¼	¾	75	285	**68.25**
534	6600	45000	6¾	3½	¾	75	395	**83.25**
536	6600	45000	7	3¾	1	75	500	**90.00**

TYPE PG—DRY PROCESS



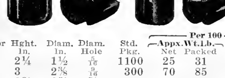
Ins'tor No.	Line Voltage	Hght. In.	Wdth. In.	Diam. Hole	No Per Bbl.	Per 100 Wt. Lb Packed	Price
520	2400	3⅜	3¼	½	200	195	**$33.25**
522	3300	3⅞	4	⅝	125	305	**68.25**
524	3300	5	4½	1	75	475	**83.25**

TYPE PN—WET PROCESS

Designed for applications which require the insulator to have unusually high mechanical and dielectric strengths.

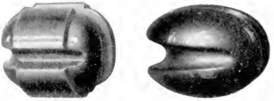
Ins'tor No.	Dry Arc-Over Voltage	Hght. In.	Wdth. In.	Groove In.	No. Per Pkg.	Per 100 Wt. Lb. Packed	Price
540	16000	3½	3	11/16	100	185	**$58.25**
542	20000	4	3⅜	13/16	100	210	**125.00**
546	25000	5½	4⅝	1 5/16	48	635	**233.25**
548	30000	5¾	4 13/16	1 7/16	48	635	**275.00**

FOR LOW-VOLTAGE SERVICE
TYPE P-2—DRY PROCESS



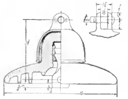
Ins'tor No.	Hght. In.	Diam. In.	Diam. Hole	Std. Pkg.	Per 100 Appx. Wt. Lb. Net	Per 100 Appx. Wt. Lb. Packed	Price
500	2¼	1½	5/16	1100	25	31	**$10.00**
502	3	2⅜	9/16	300	70	85	**21.75**
504	3¾	3⅜	⅝	200	125	150	**26.75**
506	5½	3⅜	¾	100	300	365	**50.00**

WESTINGHOUSE PORCELAIN STRAIN INSULATORS
BALL TYPE



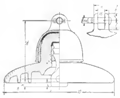
Insulator No.	Diam. In.	Hght. In.	Groove In.	Std. Pkg.	Wt. Lb. Per 100	Price Per 100
512	2¼	2½	7/16	500	87	**$10.00**
514	2¾	3¼	⅝	300	145	**18.50**
516	3¼	4⅜	⅞	125	270	**35.00**

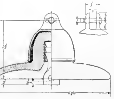
PORCELAIN SUSPENSION TYPE



Insulator No.	**601**
Voltage Rating	20000
Dry Arc-Over Volt.	80000
Leakage Dist., In.	11½
Wet Arc. Dist., In.	3¼
Packed 3, 4, 5 or 6 Per Crate.	
Wt. Lbs., Per 100	1335
Price Per 100 Units	**$363.00**

Insulator No.	**602**
Voltage Rating	20000
Dry Arc-Over Volt.	80000
Leakage Dist., In.	11½
Wet Arc. Dist., In.	3¼
Packed 3, 4, 5 or 6 Per Crate.	
Wt. Lbs., Per 100	1335
Price Per 100 Units	**$363.00**



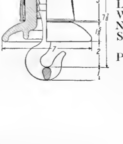


Insulator No.	**604**
Voltage Rating	20000
Dry Arc-Over Volt.	75000
Leakage Dist., In.	9¾
Wet Arc. Dist., In.	3¾
Packed 3, 4, 5 or 6 Per Crate.	
Wt. Lbs., Per 100	1355
Price Per 100 Units	**$363.00**

Note.—Can be furnished with hardware designed for assembly with ⅝ inch diameter bolt and 5⅝ inch spacing when specified. Order insulator No. 603.

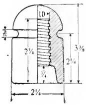
Insulator No.	**612**
Voltage Rating	11000
Dry Arc-Over Volt.	65000
Leakage Dist., In.	7
Wet Arc. Dist., In.	2⅛
Number Per Package	20
Shpg. Wt. Lbs., Per 100	900
Price Per 100 Units	**$325.00**

Note.—Can be furnished with hardware designed for assembly with ⅝ inch diameter bolt and 5⅝ inch spacing when specified. Order insulator No. 611.

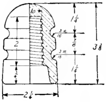


Insulator No.	**621**
Voltage Rating	11000
Dry Arc-Over Volt.	65000
Leakage Dist., In.	7
Wet Arc. Dist., In.	1⅞
Number Per Package	18
Shpg. Wt. Lbs., Per 100	1000
Price Per 100 Units	**$342.00**

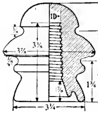
WESTINGHOUSE PORCELAIN PIN-TYPE INSULATORS



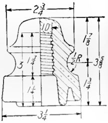
Insulator No.	**100**
Diameter, In.	2¼
Height, In.	3⅜
Diameter Wire Groove, In.	7/16
Size Pin Hole, In.	1
Net Wt. Lbs., Per 100	60
Shpg. Wt. Lbs., Per 100	75
Number Per Box	300
Price Per 100	**$13.25**



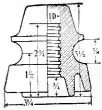
Insulator No.	**110**
Diameter, In.	2⅜
Height, In.	3½
Diam. Wire Groove, In.	⅜
Size Pin Hole, In.	1
Net Wt. Lbs., Per 100	56
Shpg. Wt. Lbs., Per 100	72
Number Per Box	300
Price Per 100	**$13.25**



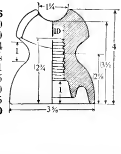
Insulator No.	**120**
Diameter, In.	3⅞
Height, In.	4¼
Diam. Wire Groove, In.	⅜
Size Pin Hole, In.	1
Net Wt. Lbs., Per 100	176
Shpg. Wt. Lbs., Per 100	200
Number Per Box	100
Price Per 100	**$40.00**



Insulator No.	**104**
Voltage Rating	4400
Dry Arc-Over Voltage	40000
Leakage Distance, In.	4
Wet Arc Distance, In.	1
Size Pin Hole, In.	1
Shpg. Wt. Lbs., Per 100	130
Number Per Box	200
Min. Pin Height, In.	5
Price Per 100	**$21.75**

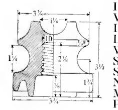


Insulator No.	**114**
Voltage Rating	4400
Dry Arc-Over Voltage	40000
Leakage Distance, In.	3¾
Wet Arc. Distance, In.	1
Size Pin Hole, In.	1
Shpg. Wt. Lbs., Per 100	125
Number Per Box	200
Min. Pin Height, In.	5
Price Per 100	**$21.75**

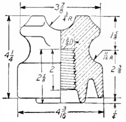


Insulator No.	**106**
Voltage Rating	6600
Dry Arc-Over Voltage	45000
Leakage Distance, In.	4
Wet Arc Distance, In.	1⅛
Size Pin Hole, In.	1
Shpg. Wt. Lbs., Per 100	175
Number Per Box	150
Min. Pin Height, In.	5
Price Per 100	**$40.00**

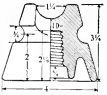
WESTINGHOUSE PORCELAIN PIN-TYPE INSULATORS



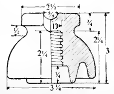
Insulator No.	**116**
Voltage Rating	6600
Dry Arc-Over Voltage	50000
Leakage Distance, In.	3¾
Wet Arc. Distance, In.	1¼
Size Pin Hole, In.	1
Shpg. Wt. Lbs., Per 100	150
Number Per Box	150
Min. Pin Height, In.	5
Price Per 100	**$40.00**



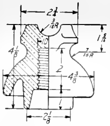
Insulator No.	**126**
Voltage Rating	6600
Dry Arc-Over Voltage	55000
Leakage Distance, In.	5
Wet Arc Distance, In.	1½
Size Pin Hole, In.	1⅜
Shpg.Wt.Lbs.,Per 100	325
Number Per Package	100
Min. Pin Height, In.	5
Price Per 100	**$68.25**



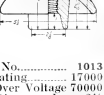
Insulator No.	**136**
Voltage Rating	6600
Dry Arc-Over Voltage	55000
Leakage Distance, In.	5
Wet Arc. Distance, In.	1½
Size Pin Hole, In.	1
Shpg. Wt. Lbs., Per 100	150
Number Per Package	150
Min. Pin Height, In.	4½
Price Per 100	**$31.75**



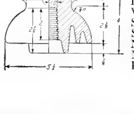
Insulator No.	**146**
Voltage Rating	7500
Dry Arc-Over Voltage	55000
Leakage Distance, In.	5
Wet Arc Distance, In.	1¼
Size Pin Hole, In.	1
Shpg. Wt. Lbs., Per 100	175
Number Per Package	150
Min. Pin Height, In.	4½
Price Per 100	**$31.75**



Insulator No.	**1011**
Voltage Rating	13000
Dry Arc-Over Voltage	60000
Leakage Distance, In.	6¾
Wet Arc Distance, In.	1⅝
Size Pin Hole, In.	1
Shpg. Wt. Lbs., Per 100	230
Number Per Package	100
Min. Pin Height, In.	5½
Price Per 100	**$53.25**

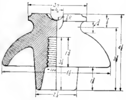


Insulator No.	**1111**
Voltage Rating	13500
Dry Arc-Over Voltage	60000
Leakage Distance, In.	6½
Wet Arc. Distance, In.	2¼
Size Pin Hole, In.	1
Shpg. Wt. Lbs., Per 100	335
Number Per Box	80
Min. Pin Height, In.	4
Price Per 100	**$53.35**



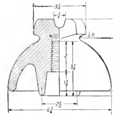
Insulator No.	**1013**
Voltage Rating	17000
Dry Arc-Over Voltage	70000
Leakage Distance, In.	8½
Wet Arc. Distance, In	2
Size Pin Hole, In.	1
Shpg.Wt.Lbs.,Per 100	440
Number Per Box	60
Min. Pin Height, In.	5½
Price Per 100	**$95.00**

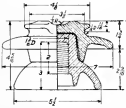
WESTINGHOUSE PORCELAIN PIN-TYPE INSULATORS



Insulator No.	**1213**
Voltage Rating	18000
Dry Arc-Over Volt.	70000
Leakage Dist., In.	9
Wet Arc. Dist., In.	3
Size Pin Hole, In.	1
Wt. Lbs., Per 100	575
Number Per Box	45
Min. Pin Height, In.	5
Price Per 100	**$90.00**

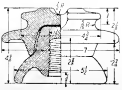
Insulator No.	**1413**
Voltage Rating	23000
Dry Arc-Over Volt.	85000
Leakage Dist., In.	10½
Wet Arc. Dist., In.	2½
Size Pin Hole, In.	1
Wt. Lbs., Per 100	780
Number Per Box	36
Min. Pin Height, In.	5½
Price Per 100	**$121.00**

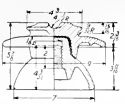




Insulator No.	**2515**
Voltage Rating	25000
Dry Arc-Over Volt.	80000
Leakage Dist., In.	9½
Wet Arc. Dist., In.	3¾
Size Pin Hole, In.	1⅜
Wt. Lbs., Per 100	655
Number Per Box	36
Min. Pin Height, In.	6
Price Per 100	**$148.00**

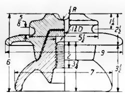
Insulator No.	**2015**
Voltage Rating	25000
Dry Arc-Over Volt.	80000
Leakage Dist., In.	8½
Wet Arc. Dist., In.	3½
Size Pin Hole, In.	1⅜
Wt. Lbs., Per. 100	800
Number Per Crate	36
Min. Pin Height, In.	6
Price Per 100	**$161.00**

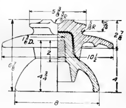




Insulator No.	**2522**
Voltage Rating	35000
Dry Arc-Over Volt.	105000
Leakage Dist., In.	14⅞
Wet Arc. Dist., In.	5
Size Pin Hole, In.	1⅜
Wt. Lbs., Per 100	1300
Number Per Crate	6
Min. Pin Height, In.	9
Price Per 100	**$240.00**

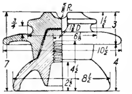
Insulator No.	**2022**
Voltage Rating	35000
Dry Arc-Over Volt.	110000
Leakage Dist., In.	13¾
Wet Arc. Dist., In.	4¾
Size Pin Hole, In.	1⅜
Wt. Lbs., Per 100	1500
Number Per Crate	6
Min. Pin Height, In.	7
Price Per 100	**$256.00**





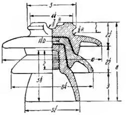
Insulator No.	**2533**
Voltage Rating	45000
Dry Arc-Over Volt.	125000
Leakage Dist., In.	19
Wet Arc. Dist., In.	5⅜
Size Pin Hole, In.	1⅜
Wt. Lbs., Per 100	1700
Number Per Crate	6
Min. Pin Height, In.	9
Price Per 100	**$300.00**

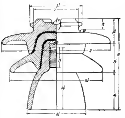
WESTINGHOUSE PORCELAIN PIN-TYPE INSULATORS



Insulator No.	**2033**
Voltage Rating	45000
Dry Arc-Over Volt.	125000
Leakage Dist., In.	17¼
Wet Arc. Dist., In.	6
Size Pin Hole, In.	1⅜
Shpg. Wt. Lbs., Per 100	2300
Number Per Crate	6
Min. Pin Height, In.	9
Price Per 100	**$338.00**

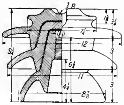
Insulator No.	**3533**
Voltage Rating	45000
Dry Arc-Over Volt.	125000
Leakage Dist., In.	19½
Wet Arc. Dist., In.	5⅞
Size Pin Hole, In.	1⅜
Shpg. Wt. Lbs., Per 100	2000
Number Per Crate	6
Min. Pin Height, In.	8
Price Per 100	**$376.00**

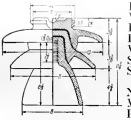




Insulator No.	**3544**
Voltage Rating	50000
Dry Arc-Over Volt.	155000
Leakage Dist., In.	24½
Wet Arc. Dist., In.	7⅝
Size Pin Hole, In.	1⅜
Shpg. Wt. Lbs., Per 100	3400
Number Per Crate	3
Min. Pin Height, In.	10
Price Per 100	**$642.00**

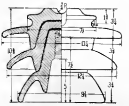
Insulator No.	**3044**
Voltage Rating	50000
Dry Arc-Over Volt.	160000
Leakage Dist., In.	26¼
Wet Arc. Dist., In.	7⅝
Size Pin Hole, In.	1⅜
Shpg. Wt. Lbs., Per 100	4000
Number Per Crate	3
Min. Pin Height, In.	11
Price Per 100	**$765.00**



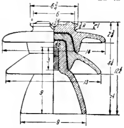


Insulator No.	**3555**
Voltage Rating	60000
Dry Arc-Over Volt.	180000
Leakage Dist., In.	30
Wet Arc. Dist., In.	8½
Size Pin Hole, In.	1⅜
Shpg. Wt. Lbs., Per 100	3900
Number Per Crate	3
Min. Pin Height, In.	12
Price Per 100	**$783.00**

Insulator No.	**3055**
Voltage Rating	60000
Dry Arc-Over Volt.	180000
Leakage Dist., In.	30¼
Wet Arc. Dist., In.	9⅛
Size Pin Hole, In.	1⅜
Shpg. Wt. Lbs., Per 100	4800
Numher Per Crate	3
Min. Pin Height, In.	12
Price Per 100	**$891.00**

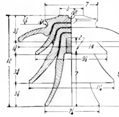


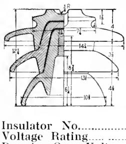
WESTINGHOUSE PORCELAIN PIN-TYPE INSULATORS



Insulator No.	**3566**
Voltage Rating	70000
Dry Arc-Over Volt.	200000
Leakage Dist., In.	33½
Wet Arc. Dist., In.	10¼
Size Pin Hole, In.	1⅜
Shpg. Wt. Lbs., Per 100	4700
Number Per Crate	3
Min. Pin Height, In.	13
Price Per 100	**$911.00**

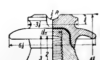
Insulator No.	**4966**
Voltage Rating	70000
Dry Arc-Over Volt.	185000
Leakage Dist., In.	40¾
Wet Arc. Dist., In.	9⅞
Size Pin Hole, In.	1⅜
Shpg Wt. Lbs., Per 100	4800
Number Per Crate	3
Min. Pin Height, In.	13
Price Per 100	**$1093.00**

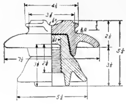




Insulator No.	**3066**
Voltage Rating	70000
Dry Arc-Over Volt.	205000
Leakage Dist., In.	36½
Wet Arc. Dist., In.	10
Size Pin Hole, In.	1⅜
Shpg. Wt. Lbs., Per 100	6300
Number Per Crate	3
Min. Pin Height, In.	14
Price Per 100	**$1161.00**

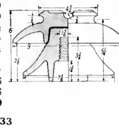
Insulator No.	**2915**
Voltage Rating	23000
Dry Arc-Over Voltage	75000
Leakage Distance, In.	8¾
Wet Arc. Distance, In.	3⅝
Size Pin Hole, In.	1⅜
Shpg. Wt. Lbs., Per 100	630
Number Per Package	45
Min. Pin Height, In.	4½
Price Per 100	**$148.00**





Insulator No.	**2918**
Voltage Rating	27000
Dry Arc-Over Volt.	85000
Leakage Dist., In.	12
Wet Arc. Dist., In.	4
Size Pin Hole, In.	1⅜
Shpg. Wt. Lbs., Per 100	850
Number Per Package	36
Min. Pin Height, In.	5½
Price Per 100	**$200.00**

Insulator No.	**2922**
Voltage Rating	35000
Dry Arc-Over Volt.	100000
Leakage Dist., In.	16½
Wet Arc. Dist., In.	5
Size Pin Hole, In.	1⅜
Shpg. Wt. Lbs., Per 100	1330
Number Per Package	6
Min. Pin Height, In.	6
Price Per 100	**$240.00**



NO. 2933

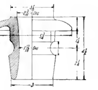
Mfrs. No.	Voltage Line	Voltage Dry Arc-Over	Leak. Dist. In.	WetArc. Dist. In.	Std. Pkg.	Price Per 100
2933	23000	75000	8¾	3⅝	45	**$300.00**

Approximate weight packed per 100 in pounds is 630. Minimum pin height recommended, 4½ inches.

WESTINGHOUSE PORCELAIN PIN-TYPE STRAIN INSULATORS

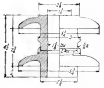
FOR VOLTAGES 6,600 TO 22,000

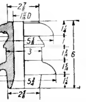
High-voltage porcelain strain insulators are used at corners, curves, dead-ends and similar points in transmission lines where the stress is too heavy for the ordinary pin-type insulator. For very high mechanical loads these may be installed in multiple.



Insulator No.	**90**
Line Voltage	6600
Dry Arc-Over Voltage	26000
Leakage Distance, In.	2
Package Quantity	60
Shpg. Wt. Lbs., Per 100	360
Price Per 100	**$143.00**

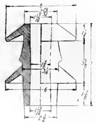
Insulator No.	**91**
Line Voltage	7500
Dry Arc-Over Voltage	35000
Leakage Distance, In.	5
Wet Arc. Distance, In.	1⅝
Package Quantity	50
Shpg. Wt. Lbs., Per 100	395
Price Per 100	**$263.00**

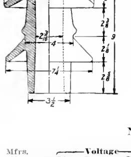




Insulator No.	**92**
Line Voltage	10000
Dry Arc-Over Voltage	44000
Leakage Distance, In.	5½
Wet Arc. Distance, In.	1¾
Package Quantity	40
Shpg. Wt. Lbs., Per 100	500
Price Per 100	**$240.00**

Insulator No.	**93**
Line Voltage	11000
Dry Arc-Over Voltage	49000
Leakage Distance, In.	6½
Wet Arc. Distance, In.	2
Package Quantity	27
Shpg. Wt. Lbs., Per 100	800
Price Per 100	**$383.00**





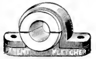
Insulator No.	**94**
Line Voltage	15000
Dry Arc-Over Volt.	55000
Leakage Dist., In.	8
Wet Arc. Dist., In.	2¼
Package Quantity	10
Net Wt. Lbs., Per 100	800
Wt. Lbs., Per 100	1400
Price Per 100	**$413.00**

NO. 95

Mfrs. No.	Voltage Line	Voltage Dry Arc-Over	Leak. Dist. In.	WetArc. Dist. In.	Std. Pkg.	Price Per 100
95	22000	67000	12½	4	2	**$975.00**

Approximate net weight per 100, 1925 pounds; shipping weight per 100, 4925 pounds.

FLETCHER INSULATED RACKS



Japanned gray iron two-piece frames with split porcelain insulator bushings.

One Wire

Mfrs. No.	Opening, In.	Dimensions, In., Lgth.	Hght.	Wdth.	Centers In.	Screw Holes In.	Wt. Lbs. Per 100	Price Each
1400	3/16	2⅝	1⅜	1¼	1 15/16	¼	40	$0.14
1402	¼	2⅝	1⅜	1¼	1 15/16	¼	40	.14
1406	5/16	3¼	1½	1⅜	2⅜	¼	60	.20
1407	⅜	3¼	1½	1⅜	2⅜	¼	60	.20
1408	7/16	3¼	1½	1⅜	2⅜	¼	60	.20
1409	½	3¼	1½	1⅜	2⅜	¼	60	.20
1411	5/16	5 5/16	2½	2 1/16	4⅛	⅜	225	.36
1412	⅜	5 5/16	2½	2 1/16	4⅛	⅜	220	.36
1413	7/16	5 5/16	2½	2 1/16	4⅛	⅜	215	.36
1414	½	5 5/16	2½	2 1/16	4⅛	⅜	210	.36
1415	9/16	5 5/16	2½	2 1/16	4⅛	⅜	205	.36
1442	⅝	5 5/16	2½	2 1/16	4⅛	⅜	200	.36
1444	¾	5 5/16	2½	2 1/16	4⅛	⅜	195	.36
1446	⅞	5 5/16	2½	2 1/16	4⅛	⅜	190	.36
1448	1	5 5/16	2½	2 1/16	4⅛	⅜	185	.36
1449	1⅛	7⅛	3½	2½	5⅝	7/16	350	.56
1450	1¼	7⅛	3½	2½	5⅝	7/16	350	.56
1451	1⅜	7⅛	3½	2½	5⅝	7/16	350	.56
1452	1½	7⅛	3½	2½	5⅝	7/16	340	.56
1453	1⅝	7⅛	3½	2½	5⅝	7/16	340	.56
1454	1¾	8⅝	4⅛	3	6 13/16	½	550	1.00
1455	1⅞	8⅝	4⅛	3	6 13/16	½	545	1.00
1456	2	8⅝	4⅛	3	6 13/16	½	540	1.00
1457	2⅛	9 5/16	4⅝	3 3/16	7⅝	½	775	1.20
1458	2¼	9 5/16	4⅝	3 3/16	7⅝	½	770	1.20
1459	2⅜	9 5/16	4⅝	3 3/16	7⅝	½	765	1.20
1460	2½	9 5/16	4⅝	3 3/16	7⅝	½	760	1.20
1461	2⅝	10¾	5⅛	3½	8 15/16	½	1085	1.60
1462	2¾	10¾	5⅛	3½	8 15/16	½	1080	1.60
1463	2⅞	10¾	5⅛	3½	8 15/16	½	1075	1.60
1464	3	10¾	5⅛	3½	8 15/16	½	1070	1.60

Two Wire

Mfrs. No.	Opening, In.	Dimensions, In., Lgth.	Hght.	Wdth.	Centers In.	Screw Holes In.	Wt. Lbs. Per 100	Price Each
3200	3/16	5¼	1½	1¼	4⅜	5/16	75	$0.28
3201	¼	5¼	1½	1¼	4⅜	5/16	75	.28
3236	5/16	6	1¾	1⅜	5	⅜	125	.40
3202	⅜	6	1¾	1⅜	5	⅜	125	.40
3237	7/16	6	1¾	1⅜	5	⅜	125	.40
3203	½	6	1¾	1⅜	5	⅜	125	.40
3239	5/16	8¼	2⅝	2 1/16	7⅛	⅜	335	.70
3240	⅜	8¼	2⅝	2 1/16	7⅛	⅜	335	.70
3241	7/16	8¼	2⅝	2 1/16	7⅛	⅜	335	.70
3242	½	8¼	2⅝	2 1/16	7⅛	⅜	335	.70
3243	9/16	8¼	2⅝	2 1/16	7⅛	⅜	335	.70
3204	⅝	8¼	2⅝	2 1/16	7⅛	⅜	335	.70
3205	¾	8¼	2⅝	2 1/16	7⅛	⅜	335	.70
3206	⅞	8¼	2⅝	2 1/16	7⅛	⅜	335	.70
3207	1	8¼	2⅝	2 1/16	7⅛	⅜	335	.70
3208	1⅛	10	3½	2½	8⅝	7/16	550	1.12
3209	1¼	10	3½	2½	8⅝	7/16	550	1.12
3210	1⅜	10	3½	2½	8⅝	7/16	550	1.12
3211	1½	10	3½	2½	8⅝	7/16	550	1.12
3212	1⅝	10	3½	2½	8⅝	7/16	550	1.12
3213	1¾	12¾	3⅞	3	11⅛	½	900	1.40
3214	1⅞	12¾	3⅞	3	11⅛	½	900	1.40
3215	2	12¾	3⅞	3	11⅛	½	900	1.40
3216	2⅛	14¼	4⅝	3 3/16	12¼	½	1350	2.30
3217	2¼	14¼	4⅝	3 3/16	12¼	½	1350	2.30
3218	2⅜	14¼	4⅝	3 3/16	12¼	½	1350	2.30
3219	2½	14¼	4⅝	3 3/16	12¼	½	1350	2.30
3220	2⅝	16	5⅛	3½	14	½	....	3.80
3221	2¾	16	5⅛	3½	14	½	....	3.80
3222	2⅞	16	5⅛	3½	14	½	....	3.80
3223	3	16	5⅛	3½	14	½	....	3.80

When ordering, give exact outside diameter of cables.

FLETCHER INSULATED RACKS

Japanned gray iron two-piece frames with split porcelain insulator bushings.

Three Wire

Mfrs. No.	Opening, In.	Dimensions, In., Lgth.	Hght.	Wdth.	Centers In.	Screw Holes In.	Wt. Lbs. Per 100	Price Each
3300	3/16	6	1½	1¼	5¼	¼	110	$0.40
3301	¼	6	1½	1¼	5¼	¼	110	.40
3336	5/16	7⅜	1¾	1⅜	6⅛	5/16	170	.52
3302	⅜	7⅜	1¾	1⅜	6⅛	5/16	170	.52
3337	7/16	7⅜	1¾	1⅜	6⅛	5/16	170	.52
3303	½	7⅜	1¾	1⅜	6⅛	5/16	170	.52
3339	5/16	10¾	2⅝	2 1/16	9¼	⅜	450	1.05
3340	⅜	10¾	2⅝	2 1/16	9¼	⅜	450	1.05
3341	7/16	10¾	2⅝	2 1/16	9¼	⅜	450	1.05
3342	½	10¾	2⅝	2 1/16	9¼	⅜	450	1.05
3343	9/16	10¾	2⅝	2 1/16	9¼	⅜	450	1.05
3304	⅝	10¾	2⅝	2 1/16	9¼	⅜	450	1.05
3305	¾	10¾	2⅝	2 1/16	9¼	⅜	450	1.05
3306	⅞	10¾	2⅝	2 1/16	9¼	⅜	450	1.05
3307	1	10¾	2⅝	2 1/16	9¼	⅜	450	1.05
3308	1⅛	13½	3½	2½	12	⅜	875	1.66
3309	1¼	13½	3½	2½	12	⅜	875	1.66
3310	1⅜	13½	3½	2½	12	⅜	875	1.66
3311	1½	13½	3½	2½	12	⅜	875	1.66
3312	1⅝	13½	3½	2½	12	⅜	875	1.66
3313	1¾	16¼	3⅞	3	14 5/16	½	1270	2.40
3314	1⅞	16¼	3⅞	3	14 5/16	½	1270	2.40
3315	2	16¼	3⅞	3	14 5/16	½	1270	2.40
3316	2⅛	18½	4⅝	3 3/16	16⅝	½	1950	3.40
3317	2¼	18½	4⅝	3 3/16	16⅝	½	1950	3.40
3318	2⅜	18½	4⅝	3 3/16	16⅝	½	1950	3.40
3319	2½	18½	4⅝	3 3/16	16⅝	½	1950	3.40
3320	2⅝	18¾	5⅛	3½	17¼	½	....	4.60
3321	2¾	18¾	5⅛	3½	17¼	½	....	4.60
3322	2⅞	18¾	5⅛	3½	17¼	½	....	4.60
3323	3	18¾	5⅛	3½	17¼	½	....	4.60

Four Wire

Mfrs. No.	Opening, In.	Dimensions, In., Lgth.	Hght.	Wdth.	Centers In.	Screw Holes In.	Wt. Lbs. Per 100	Price Each
3400	3/16	7¼	1½	1¼	6¾	¼	125	$0.45
3401	¼	7¼	1½	1¼	6¾	¼	125	.45
3436	5/16	7⅞	1¾	1⅜	7¾	5/16	215	.65
3402	⅜	7⅞	1¾	1⅜	7¾	5/16	215	.65
3437	7/16	7⅞	1¾	1⅜	7¾	5/16	215	.65
3403	½	7⅞	1¾	1⅜	7¾	5/16	215	.65
3439	5/16	13⅛	2⅝	2 1/16	11¾	⅜	585	1.20
3440	⅜	13⅛	2⅝	2 1/16	11¾	⅜	585	1.20
3441	7/16	13⅛	2⅝	2 1/16	11¾	⅜	585	1.20
3442	½	13⅛	2⅝	2 1/16	11¾	⅜	585	1.20
3443	9/16	13⅛	2⅝	2 1/16	11¾	⅜	585	1.20
3404	⅝	13⅛	2⅝	2 1/16	11¾	⅜	585	1.20
3405	¾	13⅛	2⅝	2 1/16	11¾	⅜	585	1.20
3406	⅞	13⅛	2⅝	2 1/16	11¾	⅜	585	1.20
3407	1	13⅛	2⅝	2 1/16	11¾	⅜	585	1.20
3408	1⅛	16¾	3½	2½	15¼	⅜	1075	1.90
3409	1¼	16¾	3½	2½	15¼	⅜	1075	1.90
3410	1⅜	16¾	3½	2½	15¼	⅜	1075	1.90
3411	1½	16¾	3½	2½	15¼	⅜	1075	1.90
3412	1⅝	16¾	3½	2½	15¼	⅜	1075	1.90
3413	1¾	19⅞	3⅞	3	18	½	1700	3.25
3414	1⅞	19⅞	3⅞	3	18	½	1700	3.25
3415	2	19⅞	3⅞	3	18	½	1700	3.25
3416	2⅛	23 3/16	4⅝	3 3/16	21 5/16	½	2475	4.50
3417	2¼	23 3/16	4⅝	3 3/16	21 5/16	½	2475	4.50
3418	2⅜	23 3/16	4⅝	3 3/16	21 5/16	½	2475	4.50
3419	2½	23 3/16	4⅝	3 3/16	21 5/16	½	2475	4.50
3420	2⅝	23⅞	5⅛	3½	22⅜	½	....	5.50
3421	2¾	23⅞	5⅛	3½	22⅜	½	....	5.50
3422	2⅞	23⅞	5⅛	3½	22⅜	½	....	5.50
3423	3	23⅞	5⅛	3½	22⅜	½	....	5.50

When ordering, give exact outside diameter of cables.

FLETCHER FEED-WIRE HOLDERS

GEM

With Porcelain Insulators

Made of best grade grey iron, not galvanized.

No. 1303

With Screws

Mfrs. No.	Opening In.	Wt. Lbs. Per 100	Price Each
1303	3/16	30	**$0.20**
1304	1/4	30	**.20**
1304½	5/16	60	**.26**
1305	3/8	60	**.26**
1305½	7/16	60	**.26**
1306	1/2	60	**.26**
1307	5/8	120	**.50**
1308	5/8	125	**.50**
1310	3/4	125	**.50**
1312	7/8	120	**.50**
1314	1	120	**.50**
1315	1 1/4	250	**.70**
1316	1 1/4	250	**.70**

Mfrs. No.	Opening In.	Wt. Lbs. Per 100	Price Each
1317	1 3/8	250	**$0.70**
1318	1 1/2	250	**.70**
1319	1 5/8	250	**.70**
1320	1 3/4	325	**1.20**
1321	1 7/8	325	**1.20**
1322	2	325	**1.20**
1323	2 1/8	450	**1.48**

Mfrs. No.	Opening In.	Wt. Lbs. Per 100	Price Each
1324	2 1/4	450	**$1.48**
1325	2 3/8	450	**1.48**
1326	2 1/2	450	**1.48**
1327	2 5/8	670	**1.94**
1328	2 3/4	670	**1.94**
1329	2 7/8	670	**1.94**
1329½	3	670	**1.94**

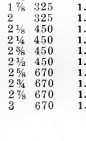
With Bolts and Nuts

Mfrs. No.	Opening In.	Wt. Lbs. Per 100	Price Each
2367	1/16	30	**$0.20**
2368	1/4	30	**.20**
2368½	5/16	45	**.26**
2369	3/8	45	**.26**
2369½	7/16	45	**.26**
2370	1/2	45	**.26**
2371	7/16	135	**.50**
2372	5/8	135	**.50**
2374	3/4	130	**.50**
2376	7/8	125	**.50**
2378	1	120	**.50**
2379	1 1/8	225	**.70**
2380	1 1/4	225	**.70**

Mfrs. No.	Opening In.	Wt. Lbs. Per 100	Price Each
2381	1 3/8	225	**$0.70**
2382	1 1/2	225	**.70**
2383	1 5/8	225	**.70**
2384	1 3/4	325	**1.20**
2385	1 7/8	325	**1.20**
2386	2	325	**1.20**
2410	2 1/8	450	**1.48**
2411	2 1/4	450	**1.48**
2412	2 3/8	450	**1.48**
2413	2 1/2	450	**1.48**
2414	2 5/8	670	**1.94**
2415	2 3/4	670	**1.94**
2416	2 7/8	670	**1.94**
2417	3	670	**1.94**

With Screws

Mfrs. No.	Opening In.	Wt. Lbs. Per 100	Price Each
481	1/16	35	$0.20
482	1/4	35	.20
482½	5/16	45	.26
483	3/8	45	.26
420	7/16	45	.26
421	1/2	45	.26
421½	5/8	125	.50
422	5/8	125	.50
423	3/4	120	.50
424	7/8	116	.50
425	1	110	.50
425½	1 1/4	250	.70
426	1 1/4	245	.70



No. 481

Mfrs. No.	Opening In.	Wt. Lbs. Per 100	Price Each
426½	1 3/8	240	**$0.70**
427	1 1/2	235	**.70**
427½	1 5/8	230	**.70**
428	1 3/4	350	**1.20**
428½	1 7/8	350	**1.20**
429	2	350	**1.20**
430	2 1/8	450	**1.48**

Mfrs. No.	Opening In.	Wt. Lbs. Per 100	Price Each
431	2 1/4	450	**$1.48**
432	2 3/8	450	**1.48**
433	2 1/2	450	**1.48**
434	2 5/8	670	**1.94**
435	2 3/4	670	**1.94**
436	2 7/8	670	**1.94**
437	3	670	**1.94**

FLETCHER FEED-WIRE HOLDERS

No. 2355

GEM—WITH BOLT AND NUTS

With Porcelain Insulators

Made of best grey iron. Has hinged clamp and split porcelain insulator.

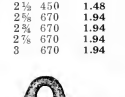
Mfrs. No.	Opening In.	Wt. Lbs. Per 100	Price Each
2355	1/16	30	**$0.20**
2356	1/4	30	**.20**
2356½	5/16	45	**.26**
2357	3/8	45	**.26**
2357½	7/16	45	**.26**
2358	1/2	45	**.26**
2358½	5/8	120	**.50**
2359	5/8	120	**.50**
2360	3/4	100	**.50**
2361	7/8	100	**.50**
2362	1	90	**.50**
2362½	1 1/4	240	**.70**
2363	1 1/4	240	**.70**
2363½	1 3/8	240	**.70**

Mfrs. No.	Opening In.	Wt. Lbs. Per 100	Price Each
2364	1 1/2	240	**$0.70**
2364½	1 5/8	240	**.70**
2365	1 3/4	360	**1.20**
2365½	1 7/8	350	**1.20**
2366	2	340	**1.20**
2350	2 1/8	450	**1.48**
2351	2 1/4	450	**1.48**
2352	2 3/8	450	**1.48**
2353	2 1/2	450	**1.48**
2346	2 5/8	670	**1.94**
2347	2 3/4	670	**1.94**
2348	2 7/8	670	**1.94**
2349	3	670	**1.94**

TREE TYPE INSULATORS

Made of grey iron, and furnished with porcelain knobs. Knobs made of dry process glazed porcelain. Provided with oval eye with round edges.

Mfrs. No.	Price Each
1952	**$0.20**


No. 1952

No. 2060

FORKED—WITH SCREWS

Of grey iron, with porcelain insulator. Used as a span support and as a distributing knob for telephone wires. Fitted with screw having sharp clean threads.

Mfrs. No.	Price Each
2060	**$0.26**

WITH PIPE CLAMPS

Mfrs. No.	Opening In.	For Pipe In.	Wt. Lbs. Per 100	Price Each
705	5/8	1 1/4	160	**$0.60**
706	3/4	1 1/4	160	**.60**
707	7/8	1 1/4	160	**.60**
708	1	1 1/4	160	**.60**
709	1 1/8	1 1/4	160	**.60**
725	5/8	1 1/2	180	**.60**
726	3/4	1 1/2	180	**.60**
727	7/8	1 1/2	180	**.60**
728	1	1 1/2	180	**.60**
729	1 1/8	1 1/2	180	**.60**
745	5/8	2	200	**.65**
746	3/4	2	200	**.65**
747	7/8	2	200	**.65**
748	1	2	200	**.65**
749	1 1/8	2	200	**.65**

No. 705

KLEIN PLIERS

DIAMOND SPECIAL—SIDE CUTTING

For Bare or Insulated Wire

No. 201-5

Black finish handles, polished head and jaws, scored jaws.

Mfrs. No.	Lgth. In.	Wt. Lbs. Per Doz.	Price Each
201-5	5	3	$5.20
201-6	6	5	5.60
201-7	7	7½	6.70
201-8	8	12	7.50
201-9	9	12½	8.90

DIAMOND SPECIAL—SIDE CUTTING

With Sleeve Joint Twister

For Bare or Insulated Wire

No. 212-6

Black finish handles, polished head and jaws, scored jaws. Same as the above one with the addition of chambers for twisting double tube sleeve joints.

Mfrs. No.	Lgth. In.	Sleeve B&S Gauge Opening	Wt. Lbs. Per Doz.	Price Each
212-6	6	17	5	$6.70
212-7	7	17	7½	7.50
212-8	8	12	12	8.90

LONG FLAT NOSE

No. 305-6

Lap joint; black finish handles; oil tempered; polished head; scored jaws. Particularly adaptable for switchboard work, telephone, telegraph and armature winding work.

Mfrs. No.	Lgth. In.	Wt. Lbs. Per Doz.	Price Each
305-6	6	3½	$4.40

LONG DUCK BILL—SIDE CUTTING

No. 205-6

Lap joint construction, black finish handles; oil tempered; polished head; scored jaws. The jaws are wider and heavier than the ordinary flat nose type. In general use as a weaver's plier.

Mfrs. No.	Lgth. In.	Wt. Lbs. Per Doz.	Price Each
205-6	6	3	$4.80

LONG NOSE—WITHOUT CUTTERS

No. 301-5

Polished heads and black handles. Scored jaws.

Mfrs. No.	Lgth. In.	Wt. Lbs. Per Doz.	Price Each
301-5	5	2¾	$3.70
301-6	6	3	4.00

LONG NOSE—SIDE CUTTING

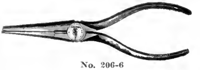
Lap joint; scored jaws.

No. 203-5

Mfrs. No.	Lgth. In.	Wt. Lbs. Per Doz.	Price Each
203-5	5	2¾	$4.40
203-6	6	3	4.80

KLEIN PLIERS

LONG FLAT NOSE—SIDE CUTTING



No. 206-6

Useful plier for working in deep and narrow places. Lap joint, scored jaws.

Mfrs. No.	Lgth. In.	Wt. Lbs. Per Doz.	Price Each
206-6	6	2½	$4.80

LONG NEEDLE NOSE

Lap joint; scored jaws.

No. 303-6

Mfrs. No.	Lgth. In.	Wt. Lbs. Per Doz.	Price Each
303-6	6	2	$4.00

LONG DUCK BILL

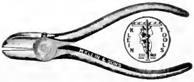
No. 304-6

Intended for general use; the duck-bill jaws are wider and heavier than those of the ordinary flat nose plier. Polished head and black handle. Lap joint, scored jaws.

Mfrs. No.	Lgth. In.	Wt. Lbs. Per Doz.	Price Each
304-6	6	3¼	$4.40

OBLIQUE CUTTING

For close cutting in confined places, will cut silk insulation cleanly. Polished head and black handle. Lap joint.



No. 202-5

Mfrs. No.	Lgth. In.	Wt. Lbs. Per Doz.	Price Each
202-5	5	4	$4.50
202-6	6	4¼	5.00

END CUTTING

No. 232-5½

Has stout jaws and broad cutting knives. Ample room in throat of pliers. Polished heads and black handles.

Mfrs. No.	Lgth. In.	Wt. Lbs. Per Doz.	Price Each
232-5½	5½	4	$6.00
232-7	7	7	6.70

LONG CURVED NOSE

A handy plier for working around switchboards; the nose being bent at an angle of 45 degrees. Lap joint; scored jaws.

No. 302-6

Mfrs. No.	Lgth. In.	Wt. Lbs. Per Doz.	Price Each
302-6	6	2¾	$4.80

KLEIN PLIERS

SLIP JOINT

No. 406-6½

Has a wire cutter and screw driver handle. Temper color finish.

Mfrs. No.	Lgth. In.	Wt. Lbs. Per Doz.	Price Each
406-6½	6½	7	**$2.00**

UTILITY SLIP JOINT

No. 407-7

Adaptable as a pipe wrench, wire cutter and sure grip jaws. Temper color finish.

Mfrs. No.	Lgth. In.	Wt. Lbs. Per Doz.	Price Each
407-7	7	7½	**$2.50**

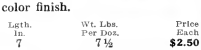
BENT NOSE SLIP JOINT

No. 408-8

Has wire cutters and bent nose. Temper color finish.

Mfrs. No.	Lgth. In.	Wt. Lbs. Per Doz.	Price Each
408-8	8	8	**$3.00**

KLEIN SPLICING CLAMPS



No. 102-1

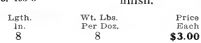
Has five round holes accommodating iron wire Nos. 10 to 18 B. W. G. and copper wire Nos. 8 to 16 B. & S. gage. Polished head; black handles.

Mfrs. No.	Lgth. In.	Wt. Lbs. Per Doz.	Price Each
102-1	8	6	**$5.20**

No. 102-3

Has five round holes and one oval hole accommodating all sizes of iron wires from Nos. 4 to 14 B. W. G. and all sizes of copper wire from Nos. 2 to 12 B. & S. gage. Polished head; black handles.

Mfrs. No.	Lgth. In.	Wt. Lbs. Per Doz.	Price Each
102-3	10¾	14¾	**$6.70**



No. 105-15

Has four holes for twisting double tube sleeves. Copper sleeves Nos. 8, 10, 12, 14, 17 B. & S.; iron sleeves Nos. 10, 12, 14, 16, 17 and 19 B. W. G. Polished head; black handles.

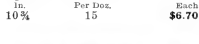
Mfrs. No.	Lgth. In.	Wt. Lbs. Per Doz.	Price Each
105-15	8	5	**$5.50**

KLEIN SPLICING CLAMPS

No. 105-17

Has five sleeve holes for twisting double tube sleeves. Copper sleeves Nos. 6, 8, 10, 12, 14, 17 B. & S.; iron sleeves Nos. 8, 10, 12, 14, 16, 19 B. W. G. Polished head; black handles.

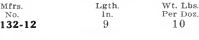
Mfrs. No.	Lgth. In.	Wt. Lbs. Per Doz.	Price Each
105-17	10¾	15	**$6.70**



No. 132-12

Has four round holes accommodating all sizes of copper wire from 6 to 12 B. & S. gage and all sizes of iron wire Nos. 8 to 14 B. W. G. The reverse side has four sets of chambers adapted for twisting double tube copper sleeve joints Nos. 8, 10, 12, 14, 17 B. & S. gage and iron sleeve joints Nos. 10, 12, 14, 16, 19. B. W. G. Polished head; black handles.

Mfrs. No.	Lgth. In.	Wt. Lbs. Per Doz.	Price Each
132-12	9	10	**$7.00**



No. 132-15

Has five round holes and will accommodate all sizes of iron wire Nos. 6 to 14 B. W. G. and all sizes of copper wire Nos. 4 to 12 B. & S. gage. One large oval hole for guy strand .467x.624. The reverse side has five sets of chambers adapted for twisting double tube copper sleeve joints Nos. 6 to 17 B. & S. gage and iron sleeve joints Nos. 8 to 19 B. W. G. Polished head; black handles.

Mfrs. No.	Lgth. In.	Wt. Lbs. Per Doz.	Price Each
132-15	11¼	15½	**$9.50**

KLEIN DI-STOCK SLEEVE TWISTER

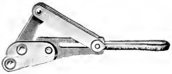
Has ample leverage for use on heavy wires beyond the capacity of standard splicing clamps or connectors. Can be made for twisting sleeves or bare wire as desired. Forged from high grade crucible steel. Has swing latch provided with thumb nut to fit over reverse jaw to hold both jaws securely in place.

Special prices on any desired combination on application. When ordering specify the sizes of the wire and sleeve joints the tool is intended for, preferably submitting actual samples of the sleeves or wire as the case may be. Made to order only.

Mfrs. No.		Wt. Lbs.	Price Each
107-1	For bare wire	4	**$25.00**
107-2	For sleeves	4	**27.50**

KLEIN WIRE GRIPS

CHICAGO



No. 1613-30

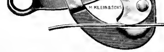
Main body piece and lever are of forged steel. Draw parts are wrought steel. Gripping jaws are machine smoothed and rivets machine turned. Draw link is so arranged that it cannot drop and interfere with line when grip is applied.

DRAW LINK TYPE

Mfrs. No.	Size Wire and Smaller	Wt. Lbs.	Price Each
For Bare Wire			
1613-30	6	1½	$ 8.00
1613-40	0	2⅝	11.00
1613-50	0000	7½	20.00
Stranded Wire Up to ⅝ Inch Diameter			
1613-60	....	14	30.00
For Insulated Wire			
1611-20	4	2 5/16	10.00
1611-30	00	3¾	13.00
1611-40	0000	7¼	23.00
For Aluminum Cable			
1626-39	250,000 C.M.	7¾	30.00
1626-40	500,000 C.M.	7¾	30.00

HAVEN'S

Forged from crucible tool steel; the eccentric or dog is hand cut, hardened and tempered; rivets are steel, machine turned; will not slip, heavy strain only making it grip tighter.



No. 1604-10

Mfrs. No.	Description	Wt. Lbs. Per Doz.	Price Each
1604-10	For No. 8 wire and finer..	12	$5.00
1604-20	For ½-inch wire and finer	30	7.00

IMPROVED HAVEN'S

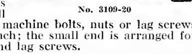
No. 1625-20

Forged from crucible tool steel; adapted for handling plain or stranded wire from No. 6 to ¾ inch in diameter.

Mfrs. No.	Description	Wt. Lb. Per Doz.	Price Each
1625-20	For wire ¾-inch diameter and smaller	69	15.00

KLEIN LAG SCREW WRENCH

Forged from selected bar steel; the slot is formed in a cross shape and will fit the heads of machine bolts, nuts or lag screws from ⅜ to ⅝ inch; the small end is arranged for 5/16 inch bolts and lag screws.



No. 3109-20

Mfrs. No.	Lgth. In.	Wt. Lbs. Per Doz.	Price Each
3109-20	13½	20	$5.00

KLEIN TROUBLEMEN'S BLOCKS

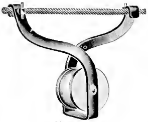
Self Locking

No. 1802-30

Furnished complete with light galvanized steel shell blocks, fitted with snubbing hook to lock load in any position, and 25 feet ⅜-inch manila rope. Is not only a great convenience to the man on the pole, but also useful for handling a vertical load. To lock the load, it is only necessary to pull the luff rope under the hook; to release, simply pull the rope. When pulling up wire to make a splice, it may be used with two grips attached to the spring guard snap hooks, or with hook for anchoring to insulator pin or other convenient anchorage.

Mfrs. No.	Wt. Lbs.	Price Each
1802-30	2½	$8.00

KLEIN CABLE ROLLERS



No. 2000-30

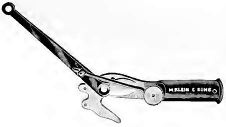
MATLOCK

A suitable number of rollers, attached to messenger wire by "T" screws, as illustrated, greatly expedites running of aerial cable. Frame is of forged mild steel. Furnished with either steel or metal bushed maple rollers.

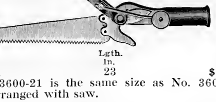
Mfrs. No.	Rollers	Wt. Lbs.	Price Each
2000-30	Maple	4½	$ 9.50
2000-31	Steel	8	13.00

KLEIN TREE TRIMMERS

FAVORITE



Mfrs. No.	Lgth. In.	Price Each
3600-20	17	$8.50



Mfrs. No.	Lgth. In.	Price Each
3600-21	23	$11.50

No. 3600-21 is the same size as No. 3600-20, only arranged with saw.

Saw Only		
913-12	12	3.00
Trimmer Handles Only		
3601-6	18 ft. (3 piece)....	$10.00
3601-9	18 ft. (2 piece)..................................	9.00

KLEIN TOOL BAGS

INSPECTORS'—LEATHER

No. 5108-14

Best quality black harness leather body, gusset and long flap; securely stitched edges; reinforced leather bottom, studded; two leather fastening straps, riveted on; black buckles; shoulder strap 1 inch wide, with extra piece 2¼ inches wide which serves as a pad; shoulder strap, fitted with black snap buckles, can be detached from bag; bag is also fitted with an extra strap across top so it can be carried like a grip if desired.

Mfrs. No.	Size In.	Wt. Lbs.	Price Each
5108-14	14x8	3	**$15.00**
5108-16	16x8	4⅛	**16.00**
5108-18	18x8	4½	**17.00**
5108-20	20x8	5⅛	**17.50**
5108-22	22x8	6	**18.50**
5108-24	24x8	7¼	**19.50**

LINEMEN'S—CANVAS

No. 5102-12

Extra heavy white duck body, leather bound edges; riveted to folding steel frame; two round leather handles, riveted to frame; two leather fastening straps, riveted to body; tinned buckles; leather bottom, stiffened and studded; all leather parts made from best quality black leather.

Mfrs. No.	Lgth. In.	Wt. Lbs.	Price Each
5102-12	12	2⅝	**$8.00**
5102-14	14	3	**9.00**
5102-16	16	3½	**10.00**
5102-18	18	3¾	**10.50**
5102-20	20	3⅞	**11.50**
5102-22	22	4	**12.50**
5102-24	24	4½	**13.50**

KLEIN BELT AND SAFETY STRAP

No 5206-1A

The tool belt is same as No. 5202. The safety strap is No. 5250. Belt 2¼ inches wide. Strap 1¾ inches. All snaps, Dee rings and buckles are solid steel drop forgings designed to take a load of 1500 lbs. without distortion and are galvanized finish. Strap may be adjusted to length by means of buckle, or it may be detached entirely from belt. Genuine oak tanned harness leather throughout.

Mfrs. No	Size of Strap	Wt. Lbs. Per Doz.	Price Each
5206-1A	1¾ in. x 6 ft.	60	**$17.80**

KLEIN TOOL BELTS

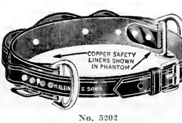
No. 5205

Made of select first quality genuine oak tanned harness leather. The inner or cushion layer 2¼ inches wide carries the Dee Rings and is lock stitched and riveted to the outer layer which also passes through the Dee rings and is furnished with a strong drop forged buckle tested to 1500 lbs.

The Dee rings are solid steel drop forgings tested to 1500 lbs. and are of improved design. Surfaces which take the wear of the Dee rings are protected with copper safety liners riveted to the belt. Dee rings and buckle are galvanized finish. All rivets are solid copper set with burrs and sewing is with hot waxed harness thread, lock stitched. The loop strap is 1¼ inches wide formed into 6 loops.

Made in lengths 34, 36, 38, 40, 42, 44, 46, 48 and 50 inches. Specify length required measuring from end of buckle to middle hole at other end of belt.

Mfrs. No.	Size In.	Wt. Lbs. Per Doz.	Price Each
5205	2¼	33	**$10.50**



No. 5202

Made of select first quality genuine oak tanned harness leather. The cushion 2¼ inches wide carries the Dee rings. The outer or loop layer is 1½ inches wide formed into tool loops by riveting to the cushion. It also passes through the Dee rings and is furnished with a strong drop forged buckle tested to 1500 lbs.

The Dee rings are solid steel drop forgings tested to 1500 lbs. All rivets are solid copper set with burrs and sewing is with hot waxed harness thread, lock stitched. Dee rings and buckle galvanized finish.

Made in lengths 34, 36, 38, 40, 42, 44, 46, 48 and 50 inches. Specify length required measuring from end of buckle to middle hole at other end of belt.

Mfrs. No.	Wdth. In.	Wt. Lbs. Per Doz.	Price Each
5202	2¼	22	**$8.90**

No. 5204

Identical with No. 5202 except the cushion is 3½ inches wide.

5204	3½	32	**$9.50**

KLEIN SAFETY STRAPS

No. 5250

Of genuine oak tanned harness leather, seeurely sewed with hot waxed thread, loek stitehed. All rivets are solid copper, set with burrs. The snaps have a solid strap loop equipped with roller and with the buekle are solid drop forgings designed to withstand a test of 1500 lbs. without distortion.

Strap may be leugthened or shortened by adjusting buekle. Reinforeed at both ends with eopper safety elips riveted through double thiekness of the leather. Snaps and buekle galvanized finish, tested to 1500 lbs.

Mfrs. No.	Size	Wt. Lbs. Per Doz.	Price Each
5250	1¾ in. x 6 ft.	30	**$8.90**

HEAVY DUTY TYPE

Same as No. 5250 with extra heavy drop forged roller snaps and buekle.

Mfrs. No.	Size	Wt. Lbs. Per Doz.	Price Each
5253	2 in. x 6 ft.	39	**$11.40**

KLEIN PLIER POCKETS

No. 5107

Made of good quality leather, loekstitehed with hot waxed linen thread. Has slits through whieh belt is inserted. Pliers protrude through bottom.

Mfrs. No.	Wt. Lbs. Per Doz.	Price Each
5107	2½	**$1.30**

Made of good quality leather, loekstitched with hot waxed linen thread. Has slits through whieh belt is inserted. Same as 5107 exeept plier does not protrude.

Mfrs. No.	Wt. Lbs. Per Doz.	Price Each
5112	2½	**$1.30**

No. 5112

KLEIN POCKET TOOL CASES

No. 5111

Made of good quality leather; for earrying pliers or other tools in hip poeket; prevents eutting of elothes or possible injury to the person.

Mfrs. No.	Size In.	Wt. Lbs. Per Doz.	Price Each
5111	5x7	2½	**$2.00**

KLEIN LEATHER POUCHES

Made of heavy harness leather with loops to slip onto belt. Loekstiteh sewing with hot waxed linen thread. Very convenient for carrying serews, staples, nails and so forth.

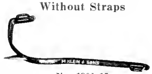
Mfrs. No.	Wt. Lbs. Per Doz.	Price Each
5106	5	**$2.00**

No. 5106

KLEIN LINEMEN'S CLIMBERS

EASTERN

Without Straps



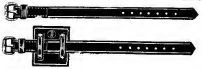
No. 1901-15

Forged from tool steel; oil finish; tempered gaff; width of strap loop 1¼ inehes; weight per dozen pair, 42 lbs.

Mfrs. No	Lgth. In.	Price Per Pair	Mfrs. No.	Lgth. In.	Price Per Pair
1901-15	15	**$8.20**	**1901-16½**	16½	**$8.20**
1901-15½	15½	**8.20**	**1901-17**	17	**8.20**
1901-16	16	**8.20**	**1901-18**	18	**8.20**

Note.—Other sizes by ½ ineh lengths to order.

STRAPS FOR EASTERN CLIMBERS



The set eonsists of two upper straps with 4x4 plain leather pads and two lower straps as shown, made of seleet oak tanned harness leather, extra heavy Drop Forged roller buekles. Heel straps overall, 22 inehes long by 1¼ inches wide; calf strap over all, 22 inehes long by 1¼ inches wide.

Mfrs. No.		Wt.Lbs., Per Doz. Sets	Price Per Set
5301-1	With Plain Pads................	15	**$6.50**
5301-2	With Sheep Lined Pads......	16	**7.00**
5301-3	With Felt Lined Pads..........	16	**7.00**
			Per Pair
5301-4	Without Pads (2 Straps)....	6	**$2.70**
5301-5	With Plain Pads (2 Straps)	9	**3.80**

One dozen in a bundle.

KLEIN CABLE SHEATH SPLITTING KNIFE

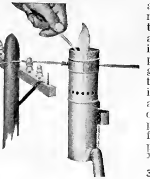
No. 1515-1

Blade tempered and ground to keen edge. Has strong leather handle, seeurely fastened.

Mfrs. No	Wt. Lbs. Per Doz.	Price Each
1515-1	6⅜	**$5.50**

STAYSALITE LINEMEN'S TORCH

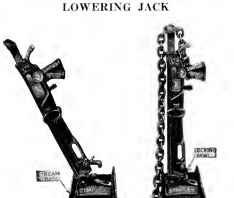
This toreh burns alcohol without odor or noise. It is earried in the lineman's belt and does away with the ground man. To suspend the torch on a wire under a joint, plaee the wire in the slots on the upper edge of the rim give the body of the torch a half turn and it's on. Also used as a small heater or soldering iron and is provided with a eup for holding soldering paste.



Mfrs. No.	Wt. Lb.	Price Each
3420	1¼	**$10.00**

SIMPLEX POLE PULLING JACK

NO. 329 AUTOMATIC RAISING AND LOWERING JACK



Its "hinged" base (an exclusive Simplex feature) is the feature that specifically and successfully adapts the No. 329 Simplex to every phase of pole maintenance work. This jack insures enormous saving in time and labor of the pole crew—no digging around pole, no breaking up of pavement or curbing. Takes but a minute to make jack ready to operate and but a few minutes for one or two men to pull the heaviest pole, no matter how deep in ground or the character of the soil.

In moving entire pole lines from one location to another, this jack has shown that it insures extraordinary economies in time, labor and expense over all other available methods. Lines moved any distance, easily and without interrupting the service. In all pole maintenance work the Simplex Jack stands supreme in the factors of speed, safety, economy and satisfaction.

Used by hundreds of telephone, telegraph companies, electric and steam railways, central power stations, etc.

Pulling poles with Simplex is a one or two man job only. Straightening poles with Simplex is a one-man-one-minute job.

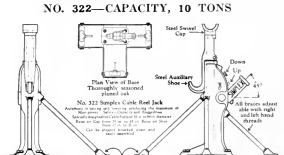
Simplex Pole Pulling and Pole Straightening Jacks are furnished complete with 8 foot scarf welded BBB steel chain, fitted with pear shaped link at one end, 5 foot forged steel pinch bar, heat treated and 10 inch 25 lb. I Beam Base 24 inches long, with punched hand hole.

Specifications

Mfrs. No.	Capacity Tons	Lift In.	Height In.	Price Each
329	**15**	24	38	**$70.00**

SIMPLEX CABLE REEL JACK

NO. 322—CAPACITY, 10 TONS



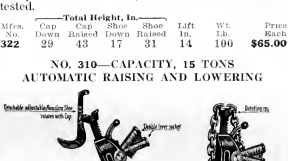
Specially designed for Cable Reels of 36 inches to 84 inches in diameter. Furnished in pairs—one right and one left, so that men operating jacks are working on same side of reel, and raising it uniformly.

Automatic Double Acting Jack operating on the upward and downward stroke. Lifts $\frac{5}{8}$ inch on each stroke allowing for the practical leveling of any Cable Reel.

Material Specifications—Base, Kiln Dried Clear Oak; Standard, Malleable Iron; Lever Socket Cap and Auxiliary Shoe, Cast Steel; Bearings, Steel; Pawls, Reversing Lever and Lever Bar Forgings. All parts heat treated, hardened and Brinnell tested.

Mfrs. No.	Total Height, in. Cap Down	Cap Raised	Shoe Down	Shoe Raised	Lift In.	Wt. Lb.	Price Each
322	29	43	17	31	14	100	**$65.00**

NO. 310—CAPACITY, 15 TONS AUTOMATIC RAISING AND LOWERING



Because of its "pivoting" base, the No. 310 Simplex can be operated at any angle.

Its four points of lift, chain, shoe, cap and lower foot enable jack to operate in cramped and difficult positions and handle irregular shaped objects.

It Pulls Poles, Also

This jack is a miniature of the Simplex No. 329 and operates in similar manner—adapted to handling small poles that can be grabbed by its 5 foot chain.

Equipped complete with 5 foot steel chain, 5 foot forged steel lever bar and drop forged steel detachable shoe.

Mfrs. No.	Height In.	Lift In.	Wt. Lb.	Price Each
310	20½	12½	104	**$48.00**

OSHKOSH CARRYING OR LUG HOOKS

REGULAR PATTERN

For handling telegraph poles, ties or any heavy timbers from 3 to 16 inches in diameter. They are made with crucible steel chisel point hooks with malleable clasps and swivels to permit turning. Select rock maple handles.

Mfrs. No.	Diam. Handle, In.	Length Handle, Feet	Wt. Lbs. Per Doz.	Price Per Doz.
295	2½	4	85	**$36.25**
296	2½	4½	90	**36.90**
297	2½	5	95	**39.25**

Extra Heavy with Steel Swivels

For timbers up to 23 inches in diameter.

298	3	5	145	**68.30**
299	3	6	155	**74.35**
300	3	7	165	**81.00**

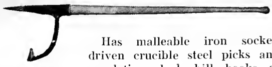
WESTERN UNION PATTERN

Plates on lower and upper side of handle prevent bolts being pulled through handle. Handle is 3 inches square in middle. Has swivel bolt through handle. Select rock maple handles.

Mfrs. No.	Length Handle, Feet	Wt. Lbs. Per Doz.	Price Per Doz.
800	4	135	**$53.95**
801	5	150	**57.20**
802	6	160	**61.80**
803	7	175	**67.90**
804	8	190	**77.55**

OSHKOSH PEAVIES

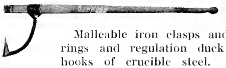
MALLEABLE SOCKET



Has malleable iron socket, driven crucible steel picks and regulation duck bill hooks of crucible steel. No. 124 has maple handle, No. 137 hickory handle.

Mfrs. No.	Diam. Handle, In.	Length Handle, Feet	Wt. Lbs. Per Doz.	Price Per Doz.
124	2½	4	110	**$39.70**
137	2½	4	110	**50.05**

OSHKOSH CANT HOOKS



Malleable iron clasps and toe rings and regulation duck bill hooks of crucible steel. Nos. 188A to 189 inclusive have maple handles; Nos. 199A to 200 inclusive have hickory handles, and Nos. 210A to 211 have second growth maple handles.

Mfrs. No.	Diam. Handle, In.	Length Handle, Feet	Wt. Lbs. Per Doz.	Price Per Doz.
188A	2¼	4	80	**$31.55**
189A	2¼	4½	90	**32.55**
188	2½	4	95	**33.90**
189	2½	4½	100	**34.85**
199A	2¼	4	80	**42.75**
200A	2¼	4½	90	**44.05**
199	2½	4	95	**45.20**
200	2½	4½	100	**46.40**
210A	2¼	4	80	**35.65**
211A	2¼	4½	90	**36.55**
210	2½	4	95	**37.40**
211	2½	4½	100	**39.60**

OSHKOSH PIKE POLES

STANDARD

Have Washington fir handles 2 inches in diameter, not tapered.

805	2	10	75	**28.25**
806	2	12	95	**31.60**
807	2	14	115	**35.10**
808	2	16	135	**43.30**

A. T. AND T. PATTERN

Pike is of ⅝ inch square crucible steel, projects 4 inches from end of pole and tapers 2 inches. Made of Washington fir, 2½ inches in diameter in the middle and tapers to 2 inches at each end.

817	2½	10	140	**34.10**
818	2½	12	150	**37.40**
819	2½	14	165	**44.90**
820	2½	16	185	**52.60**
821	2½	18	215	**58.45**
822	2½	20	240	**66.25**

GUARDED

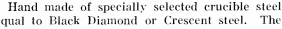
Handle is Washington fir, 2 inch pole is straight handle and 2½ inch tapers to 2 inches at each end. Fork is one piece malleable iron.

832	2	10	120	**40.85**
833	2	12	145	**43.90**
834	2	14	160	**50.80**
795	2	16	175	**60.40**
796	2½	12	155	**62.30**
797	2½	14	170	**66.25**
835	2½	16	185	**70.10**
836	2½	18	195	**74.10**
837	2½	20	220	**77.95**

OSHKOSH DIGGING BARS

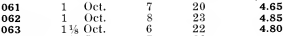
Hand made of specially selected crucible steel equal to Black Diamond or Crescent steel. The steel that goes to make these bars is rolled for the purpose.

CROW AND DIGGING



Mfrs. No.	Size, In.	Length, Feet	Weight, Lbs.	Price Each
1060	1 Oct.	6	17	**$4.20**
1061	1 Oct.	7	20	**4.65**
1062	1 Oct.	8	23	**4.85**
1063	1 1/8 Oct.	6	22	**4.80**
1064	1 1/8 Oct.	7	26	**5.05**
1065	1 1/8 Oct.	8	30	**5.70**

TAMPING AND DIGGING



Mfrs. No.	Size, In.	Length, Feet	Weight, Lbs.	Price Each
1070	1 Oct.	6	17	**$4.50**
1071	1 Oct.	7	20	**4.85**
1072	1 Oct.	8	23	**5.15**
1073	1 1/8 Oct.	6	22	**4.85**
1074	1 1/8 Oct.	7	26	**5.35**
1075	1 1/8 Oct.	8	30	**6.15**

PLAIN

Mfrs. No.	Size, In.	Length, Feet	Weight, Lbs.	Price Each
1080	1 Rd.	6	16 1/2	**$3.55**
1081	1 Rd.	7	10	**4.20**
1082	1 Rd.	8	21 1/2	**4.85**
1083	1 1/8 Rd.	6	21	**4.35**
1084	1 1/8 Rd.	7	24	**4.85**
1085	1 1/8 Rd.	8	28	**5.60**

DIGGING SPUD WITH TAMPER

An especially fine all steel digging and tamping tool. The handle is of steel pipe and the tamping head and blade are shrunk onto the handle, there being no possibility of either working loose. The blade and its socket are one piece of forged crucible steel.

Mfrs. No.	Length Feet	Wt. Lbs. Per Doz.	Price Per Dozen
852	9	234	**$60.60**

ELECTRIC TAMPING BARS

These bars are of lighter construction than the regular heavy solid steel tamping bar. They are made of steel pipe, with malleable tampers of different size on each end.

Mfrs. No.	Length Feet	Price Per Dozen
1044	8	**$44.95**

OSHKOSH LOYS OR SLICKS

The most useful construction tool made for digging post holes. The handle is of 2 inch select maple and the blade is of tool steel 4 inches by 1/2 inch, burned onto the handle and held by two large rivets. The blade being off to one side gives great leverage when prying.

Mfrs. No.	Length Handle, Feet	Wt. Lbs. Per Doz.	Price Per Dozen
853	8	210	**$78.55**

OSHKOSH TAMPING BARS

LIGHT

With Heavy Iron Shoe

Made with select 2 inch maple handles with a 1 3/8 by 1/4 inch steel shoe securely riveted on them. A strong and serviceable tool.

Mfrs. No.	Length Handle, Feet	Wt. Lbs. Per Doz.	Price Per Dozen
854	7	150	**$41.65**
855	8	170	**46.05**

Same as Nos. 854 and 855 except the iron shoe is 1 1/4 by 1/2 inch steel.

OSHKOSH—HEAVY
With Extra Heavy Iron Shoe

Mfrs. No.	Length Handle, Feet	Wt. Lbs. Per Doz.	Price Per Dozen
1054	7	160	**$38.40**
1055	8	180	**42.20**

OSHKOSH PIKE POLE HANDLES

STANDARD

Made of Washington Fir, being 2 inch even taper.

Mfrs. No.	Diam., In.	Length, Feet	Wt. Lbs. Per Doz.	Price Per Dozen
970	2	10	80	**$19.80**
971	2	12	105	**22.50**
972	2	14	125	**25.60**
973	2	16	140	**35.00**

OSHKOSH—A. T. AND T. PATTERN

2 1/2 inch diameter at center and tapered to 2 inch at each end.

Mfrs. No.	Diam., In.	Length, In.	Wt. Lbs Per Doz.	Price Per Dozen
982	2 1/2	12	140	**$35.35**
983	2 1/2	14	150	**40.00**
984	2 1/2	16	170	**43.80**
985	2 1/2	18	200	**49.05**
986	2 1/2	20	225	**55.25**

OSHKOSH SPOONS AND SHOVELS

POST HOLE

With Hickory or Ash Handles

All hickory or ash handles are $1\frac{15}{16}$ inch in diameter, and are straight grained hickory or ash, nicely polished and waxed. Scoops and blades are made of crucible steel with front and back straps.

IMPROVED WESTERN UNION PATTERN FLAT TOE SPOONS

Mfrs. No.	Length Handle, Feet	Size Strap, In.	Wt. Lbs. Per Doz.	Price Per Doz.
1020	7	9	105	**$38.20**
1021	8	9	115	**40.55**
1022	9	9	125	**45.05**
1023	7	22	115	**40.55**
1024	8	22	125	**45.05**
1025	9	22	135	**48.45**
1026	10	22	145	**57.45**
1027	12	22	155	**68.60**

STRAIGHT HANDLE SHOVELS

1029	7	9	95	**37.00**
1030	8	9	105	**39.25**
1032	7	22	100	**39.25**
1033	8	22	110	**43.40**
1034	9	22	120	**48.45**
1035	10	22	130	**57.45**

CROOKED HANDLE SHOVELS

1037	7	9	95	**38.75**
1038	8	9	105	**41.80**
1040	7	22	100	**41.80**
1041	8	22	110	**45.35**
1042	9	22	120	**50.75**
1043	10	22	130	**60.30**

OSHKOSH HICKORY OR ASH SPOON AND SHOVEL HANDLES

Made of best selected stock and are $1\frac{15}{16}$ inch diameter.

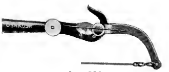
STRAIGHT HANDLES

Mfrs. No.	Length, Feet	Wt. Lbs. Per Doz.	Price Per Doz.
1005	7	65	**$22.55**
1006	8	70	**25.75**
1007	9	75	**29.55**
1008	10	85	**34.50**

CROOKED HANDLES

1014	7	55	**23.10**
1015	8	60	**26.40**
1016	9	65	**30.05**
1017	10	70	**35.50**

OSHKOSH TREE TRIMMERS



No. 912

Heavily constructed of a malleable iron socket and hook, to which is bolted tool steel cutting knife, which is an integral part of the operating lever. This knife is operated by a rope either attached to a lever or loose, as desired. Knife automatically springs back into cutting position when limb is cut, being operated by a flat steel coil spring. Comes either without saw, 18 inches over all, or with saw, 26 inches over all. Threaded holes are provided on the trimmer with the saw in order that it may be used without saw if desired or new saws put on in case of breakage. Handles are made of Washington fir, 1¾ inches in diameter, 12 to 18 feet long. Can be had in one piece or two sections joined by seamless brass ferrule in the center. Easily cuts a limb 1½ inches thick.

No. 917

Mfrs. No.	Style	Weight Pounds	Price Per Doz
912	No Saw	50	**$48.80**
917	With Saw	60	**61.85**

OSHKOSH TREE TRIMMER HANDLES

One Piece

Mfrs. No.	Diam., In.	Length, Feet	Wt. Lbs. Per Doz.	Price Per Doz.
722	1¾	12	80	**$15.25**
723	1¾	14	120	**17.65**
724	1¾	16	120	**21.25**
725	1¾	18	140	**24.85**

Two Piece, With Ferrule

726	1¾	12	90	**30.25**
727	1¾	14	110	**32.80**
728	1¾	16	130	**35.65**
729	1¾	18	150	**40.25**

WESTERN UNION TYPE

Cutting head is 12 inches long and securely riveted to the handle. Knife is of tool steel and operated by a $\frac{3}{16}$-inch coppered steel rod attached to a steel and wood handle, which is controlled by a strong spiral spring attached to the steel part of the small handle and the trimmer handle itself. Spring is attached to the end of the operating handle, for a rope, should the extension handle be desired. 12 feet of sash cord is provided with each trimmer. Regularly made with an 8 foot, 1⅛ x 1⅛ inch square Washington fir handle with round edges, but 10 foot extension can be had if desired.

Mfrs. No.	Description	Wt. Lbs. Each	Price Per Doz.
910	With Handle	5	**$50.05**
911	Extension, with Brass Ferrule	2½	**17.50**

YANKEE SCREW DRIVERS

SPIRAL RATCHET

These drive or draw screws by pushing on the handle or by a ratchet movement, or they can be made rigid as an ordinary screw driver. Movement is changed instantly by a simple shifter; spindle can be locked elosed. Three bits of different sizes furnished with each driver; of extra high quality steel and thoroughly tested. Metal parts nickel plated; handle hardwood, handsomely polished.

No. 30-A, standard size. No. 31-A, heavy style for large serews. No. 35 for small screws; lighter and more sensitive than No. 30-A. Is used on electrical and similar work. Bits have straight sides to follow into deep holes in insulators, etc. Is pocket size.

Mfrs. No.	Lgth. with Bit, Closed	Wt. Lb. Per Doz.	Price Per Doz.
30-A	13	14	**$48.20**
31-A	16¾	20½	**64.70**
35	9⅛	7½	**35.80**

Quick Return Style

Same sizes and styles as above, and attachments interehange with them. Have spring within handle, making it return quiekly after each stroke. Spring holds bit in screw slot so driver ean be used with one hand. This style is easier in constant use, quieker and more convenient than those without spring.

Mfrs. No.	Lgth. wiht Bit, Closed	Wt. Lb. Per Doz.	Price Per Doz.
130-A	14¾	14½	**$55.00**
131-A	19¼	24½	**74.30**
135	10	7½	**42.60**

SPIRAL DRIVER ATTACHMENTS

Chucks and Drill Points

Used in spiral screw drivers in place of bit, making them into automatic drills. Eight sizes of points $\frac{1}{16}$ to $\frac{11}{64}$ inch with chuck in wood box. No. 35 uses three points $\frac{1}{16}$ to $\frac{3}{32}$ inch only.

Mfrs. No.	No. Points with Chuck	Wt.Lb. Per Doz.	Price Per Doz
30-A	8	1¼	**$15.00**
31-A	8	1¼	**15.00**
35	3	½	**7.50**

Countersinks

Mfrs. No.	Wt. Oz. Per Doz.	Price Per Doz
30-A	7	**$3.90**
31-A	9	**3.90**
35	5	**3.90**

Screw Holder Bits

Mfrs. No.	Wt. Lb. Per Doz.	Price Per Doz.
30-A	1¾	**$8.60**
31-A	2	**8.60**
35	1⅛	**7.50**

Drivers, one in a box; attachments, dozen in a box.

YANKEE SCREW DRIVERS

PLAIN

Standard Style

Hardwood handles finished dull black; no metal on end. Blades special, high quality steel, every point tested. Blades and ferrules polished. Blades fastened in handles so eannot loosen under use or usual abuse. Strong, well balanced, durable drivers. 18, 24 and 30 ineh have double grips.

Mfrs. No.	Lgth. Blade Inch	Lgth. Overall Inch	Wt. Lbs. Per Doz.	Price Per Doz.
90/1½	1½	5¼	1	**$5.00**
90/2	2	5¾	1¼	**5.00**
90/3	3	6¾	1½	**5.50**
90/4	4	9¼	2¾	**6.50**
90/5	5	10½	4	**8.00**
90/6	6	11¾	4¼	**9.10**
90/7	7	13	6	**10.50**
90/8	8	14	6¼	**12.10**
90/9	9	15	6¾	**13.30**
90/10	10	16½	9½	**14.90**
90/12	12	18½	10½	**17.40**
90/15	15	21⅜	13½	**23.30**
90/18	18	27	20	**33.00**
90/24	24	33	23¾	**38.50**
90/30	30	39	29	**44.00**

2 to 12 ineh paeked six in a box.
15 to 30 inch packed three in a box.

Cabinet Style

Similar construction to standard style above. Slim blades, same width all way baek, slightly tempered entire length.

Mfrs. No.	Lgth. Blade Inch	Lgth. Overall Inch	Wt. Lbs. Per Doz.	Price Per Doz.
95/2½	2½	6⅞	1¼	**$5.00**
95/3½	3½	7¼	1½	**5.50**
95/4½	4½	8¼	1½	**6.40**
95/5½	5½	9¼	1¾	**7.10**
95/6½	6½	10¼	1¾	**8.00**
95/7½	7½	12	2½	**8.80**
95/8½	8½	13	2½	**9.80**
95/9½	9½	14	2¾	**10.70**
95/10½	10½	15	3	**11.80**
95/12½	12½	17	3¼	**13.40**
95/15½	15½	20	3¾	**16.00**

Six in a box.

RATCHET—WITH SCREW HOLDER

These are ratehet screw drivers exactly like Nos. 10 and 15 opposite, but with serew holder added. A handy feature when only one hand can be used or in plaees hard to reach. Does not interfere with ordinary use of driver; holder can be pulled baek on blade when not in use. Jaws open and release automatically when screw is driven nearly flush.

Mfrs. No.	Lgth. Blade Inch	Lgth. Overall Inch	Wt. Lbs. Per Doz.	Price Per Doz.
110/3	3	7¾	4	**$18.20**
110/4	4	8¾	4¼	**19.00**
110/5	5	9¾	4½	**20.40**
110/6	6	11½	5¾	**22.60**
110/8	8	13½	6¾	**24.80**

Mfrs. No.	Lgth. Blade Inch	Lgth. Overall Inch	Wt. Lbs. Per Doz.	Price Per Doz.
115/3	3	5⅞	2	**$17.00**
115/4	4	6⅞	2¼	**17.50**
115/5	5	7⅞	2½	**18.00**

One in a box.

YANKEE RATCHET DRILLS

All drills listed below have well known Yankee complete ratchet movement. There are five different spindle movements instantly available: plain drive, right hand ratchet, left hand ratchet, continuous ratchet; spindle locked for opening chuck. Simply slipping shifter on spindle from one notch to another makes the changes. Continuous ratchet is great convenience and time saver where crank can only be turned a little, as it makes drill cut all the time on back and forward strokes.

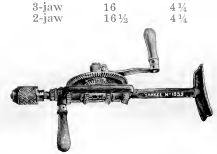
Change from fast to slow speed instantly made without taking drill from work.

Single speed Ratchet Hand Drill with 3 jaw chuck for round shank drills only. Capacity up to $\frac{5}{8}$ inch; malleable iron frame, hardwood handle detachable at milled nut, deep drill magazine inside. Spindle, steel with adjustable thrust bearing. Cut gears, large one 3 inch diameter.

Mfrs. No.	Lgth. Overall Inch	Wt. Lbs. Each	Price Each
1530	10 ½	1 ¼	**$7.00**

Double speed Ratchet Hand Drills. Capacity up to $\frac{3}{8}$ inch. With 2 jaw chuck for square shank drills or 3 jaw chuck for round shank drills. Malleable iron frame. Hardwood handle, detachable at milled nut; deep drill magazine inside. Side handle has screw driver bit. Steel spindle with adjustable ball bearing. Cut gears, large one 4 ½ inch diameter.

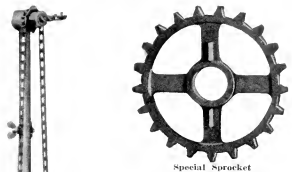
Mfrs. No.	Style Chuck	Lgth. Overall Inch	Wt. Lbs. Each	Price Each
1545	3-jaw	16	4 ¼	**$13.40**
545	2-jaw	16 ½	4 ¼	**13.40**



Double Speed Ratchet Breast Drills. Capacity up to $\frac{1}{2}$ inch. With 2 jaw chuck for square shank drills or 3 jaw chuck for round shank drills. Malleable iron frame, with dead black finish. Breast plate adjustable, has polished face. Side handle has screw driver bit. Steel spindle with adjustable ball bearing. Cut gears, large one 5 ¼ inch diameter. Chuck nickel plated.

Mfrs. No.	Style Chuck	Lgth. Overall Inch	Wt. Lbs. Each	Price Each
1555	3-jaw	17	6 ⅞	**$15.40**
555	2-jaw	18	6 ¾	**15.40**

JONES BORING MACHINE



Special Sprocket

Designed for rigid conduit, Greenfield, B. X. and tube work. Made of three steel tubes, each 5 feet long, with total length of extension, 14 feet. Enables mechanic to operate machine on the highest ceilings. No step ladder is required. Collapsible to easy carrying length of 5 ¾ feet.

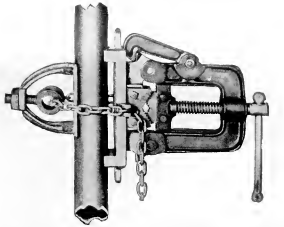
The machine is provided with a chuck like a brace that will take round or square shank bits. Will bore holes 3 inches in diameter eight times faster than the ratchet drill, it bores the beams straight through or on a slant. Bronze bearings throughout, eliminating all friction and insures ease of operation.

Equipped with the ordinary sprocket this machine will bore holes up to 1 ¼ inches. With the special 6 inch sprocket it will bore holes to 3 inches with ease. The large sprocket screws on and off the chuck.

Circular saw may be attached for notching joist on the ceiling by screwing same on the chuck. The floor attachment permits the use of this machine in upside down position for old house wiring.

	Price Each
Boring Machine without Attachments	**$30.00**
Special 6 Inch Sprocket	**3.00**
Floor Attachment for Old House Wiring	**7.50**
Sawing Attachment	**9.00**

JONES ADJUSTABLE PIPE VISE



This quick adjustable pipe vise can be mounted anywhere without bolt or lag screw and is a labor saving device.

Price Each **$12.00**

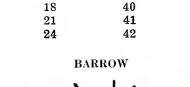
OSHKOSH REELS

FOLDING TAKE UP

A handy device for handling wire. With this device miles of wire can be taken down without injury. Reel is light, but strongly constructed of rock maple, malleable iron and steel. Frame folds up into a compact bundle, and the reel in throwing off the coil automatically collapses into a very small space.

Mfrs. No.	For Size Coil, In.	Weight Lbs.	Price Each
896	18	40	**$19.80**
897	21	41	**20.15**
898	24	42	**20.60**

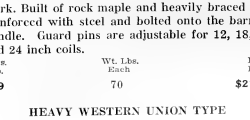
BARROW



These reels are usually used for light or telephone construction, but can be used for heavier work. Built of rock maple and heavily braced and reinforced with steel and bolted onto the barrow handle. Guard pins are adjustable for 12, 18, 21 and 24 inch coils.

Mfrs. No.	Wt. Lbs. Each	Price Each
899	70	$21.30

HEAVY WESTERN UNION TYPE



Made of heavier material than No. 899. All legs bolted to frame. Guard pins adjustable for 12, 18, 21 and 24 inch coils.

Mfrs. No.		Weight Pounds	Price Each
900	Heavy W. U. Type.....	80	**$22.05** Per Set of 4
901	Extra Guard Pins.....	2	**2.75**

OSHKOSH REELS

PAYOUT

Made of rock elm, well braced and reinforced with sheet steel throughout.

Mfrs. No.	Wt. Lbs. Each	Price Each
902	40	**$13.20**

OSHKOSH POLE SUPPORTS

WOODEN JENNY

Made of clear select Washington Fir. Light in weight and easily collapsible for carrying in trucks. Pikes are placed on the bottom of each leg to prevent slipping on hard surfaces.

Mfrs. No.	Height, Feet	Weight, Lbs.	Price Each
842	6	25	**$8.90**
843	7	30	**10.15**
844	8	35	**11.00**

CANT HOOK AND PEAVY HANDLES

Made of selected, straight grained material.

MAPLE

Mfrs. No.	Diam., In	Length, Feet	Wt. Lbs. Per Doz.	Price Per Doz.
541	2 1/4	4	33	**$11.15**
542	2 1/4	4 1/2	35	**11.95**
544	2 1/2	4	40	**11.95**
545	2 1/2	4 1/2	45	**12.70**
*561	2 1/4	4	40	**14.75**
*562	2 1/4	4 1/2	45	**15.95**

*Second growth maple.

HICKORY

572	2 1/4	4	38	17.65
573	2 1/4	4 1/2	40	19.15
575	2 1/2	4	50	19.15
576	2 1/2	4 1/2	55	**20.60**

MISCELLANEOUS HANDLES

Made of high grade maple.

Mfrs. No.	Handles	Length Feet	Wt. Lbs. Per Doz.	Price Per Doz.
1001	Loy or Slick	8	100	**$48.25**
1002	Tamping Bar	7	90	**31.50**
1003	Tamping Bar	8	100	**33.40**

MINNEAPOLIS REEL AND METER

For measuring various sizes of wire, cordage, etc. Wire passes between two self-adjusting rollers and will be measured accurately whether large or small size. Reel is provided with removable cross bars and the drum with grooves so the coil can be bound with tie wires and removed in compact form.

Meter can also be furnished without reel for fastening to side of counter.

Cable Meter will measure small sizes of wires as well as large cable, flexible conduit, rope, etc.

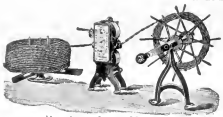
	Price Each		Price Each
Reel and Meter	**$35.00**	Counter Meter	**$23.50**
Meter only	**22.50**	Cable Meter	**35.00**

MINNEAPOLIS PAYOUT REEL

SELF-ADJUSTING

Price Each.....**$16.00**

WALDMAN WIRE MEASURING REEL



Measures all wires from No. 0 to 40 inclusive. Can be fastened to counter or side wall and occupies but little space. The winder and reel may be folded when not in use.

Mfrs. No.	Description	Price Each
1	Folding Reel	$ 6.00
2	Measuring Machine	15.00
3	Wire Winder	10.00

AMERICAN STANDARD WIRE GAUGE

No. 6[so]

Decimal equivalents stamped on the reverse side.

Mfrs. No.	Capacity	Price Each
688	0 to 36	**$3.00**
688	5 to 36	**2.50**

POCKET TOOLS

NICKEL PLATED POCKET LEVEL

Mfrs. No.	Size Inches	Price Each
135	2½	**$0.50**
135	3½	**.60**

ELECTRICIAN'S LEVELS

Plain and Graduated Vial

Mfrs No.	Size Inches	Price Each
197	8	**$3.00**
197	12	**4.50**
197	16	**5.50**

IMPROVED SPEED INDICATORS

Graduations show every revolution, and with two rows of figures read both right and left, as the shaft may run. While looking at the watch each hundred revolutions may be counted by allowing the oval headed pin on the revolving disk to pass under the thumb as the instrument is pressed.

Mfrs. No.		Price Each
106	In Pasteboard Box	**$1.85**
106	In Leather Case	**2.65**

POLE COUNTERS

Numbers From	Price Each
1-999	**$5.00**

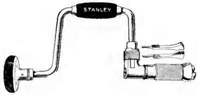
LINEMEN'S RUBBER GLOVES

Made of pure gum to fit the hand with gauntlet. Furnished in two weights: Standard weight for 4000 volts, Heavy weight for 10000 volts.

—Standard Weight— Cat. No.	Size Hand	Price Per Pair	—Heavy Weight— Cat. No.	Size Hand	Price Per Pair
810	9	**$7.00**	**813**	9	**$8.00**
811	10	**7.00**	**814**	10	**8.00**
812	11	**7.00**	**815**	11	**8.00**

STANLEY BIT BRACES

BOX RATCHET BIT BRACES

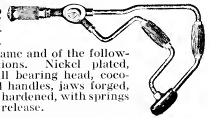


Head handles cocobolo. Ball bearing metal-clad heads; interlocking jaws; nickel plated.

Mfrs. No.	Sweep In.	Pkg. Wt.	Price Each	Mfrs. No.	Sweep In.	Pkg. Wt.	Price Each
919	6	5	**$4.55**	**919**	12	6½	**$4.75**
919	8	5¼	**4.55**	**919**	14	7¼	**4.85**
919	10	6	**4.65**	......	....	......	...

Standard package, 2.

CORNER BIT BRACES



Made in two styles of chucks or jaws; otherwise are the same and of the following specifications. Nickel plated, metal clad ball bearing head, cocobolo head and handles, jaws forged, machined and hardened, with springs for automatic release.

Interlocking Jaws

Mfrs. No	Sweep Inches	Std. Pkg.	Wt Lb Std Pkg.	Price Each
992	8	2	7¾	**$6.70**
992	10	2	8	**7.25**

Universal Jaws

Mfrs. No	Sweep Inches	Std. Pkg.	Wt Lb Std Pkg.	Price Each
993	8	2	8¼	**6.70**
993	10	2	8½	**7.25**

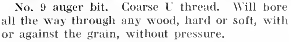
EXTENSION BIT HOLDERS

Will extend the bit, enabling the user to bore through walls, floors, etc., where the ordinary bit will not reach. Bit socket and shank are of one piece steel and so constructed that bit will not work loose while boring. Any length holder will follow up a ⅝ inch bit.

Number 1—Nickel Plated

Lgth. In.	Tip In.	Std. Pkg.	Wt. Lb.	Price Each	Lgth. In.	Tip In.	Std. Pkg.	Wt. Lb.	Price Each
12	9/16	6	2⅞	**$1.85**	20	9/16	6	4⅜	**$2.00**
16	9/16	6	3½	**1.90**	24	9/16	6	5¼	**2.05**
18	9/16	6	4	**1.95**	30	9/16	6	6⅝	**2.20**

MEPHISTO AUGER BITS



No. 9 auger bit. Coarse U thread. Will bore all the way through any wood, hard or soft, with or against the grain, without pressure.

No. 900 bores very rapidly; designed especially for electricians; can be used in metal ceiling work without harming the tool.

No. 9— Size Bore Inch	Price Each	No. 900 Size Bore Inch	Price Each
10/16	**$1.40**	10/16	**$1.40**
11/16	**1.50**	11/16	**1.50**

Packed six in a box.

BELL HANGERS' AND ELECTRICIANS' BITS

List No. 114—Give This Number When Ordering

Diam. Inches	Prices Per Dozen 12 Inch	18 Inch	24 Inch	30 Inch	36 Inch
3/16	**$7.50**	**$10.00**	**$12.50**	**$15.00**	**$17.50**
¼	**8.00**	**10.50**	**13.00**	**15.50**	**18.00**
5/16	**8.75**	**11.00**	**13.50**	**16.00**	**18.50**
⅜	**9.50**	**12.00**	**14.50**	**17.00**	**19.50**
7/16	**10.50**	**13.00**	**15.50**	**18.00**	**20.50**
½	**12.00**	**14.50**	**17.00**	**19.50**	**22.00**
9/16	**13.50**	**16.00**	**18.50**	**21.00**	**23.50**
⅝	**15.25**	**17.75**	**20.25**	**22.75**	**25.25**
11/16	**17.00**	**19.50**	**22.00**	**24.50**	**27.00**
¾	**19.00**	**21.50**	**24.00**	**26.50**	**29.00**
13/16	**21.00**	**23.50**	**26.00**	**28.50**	**31.00**
⅞	**23.00**	**25.50**	**28.00**	**30.50**	**33.00**
15/16	**25.00**	**27.50**	**30.00**	**32.50**	**35.00**

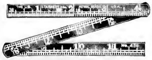
POCKET TOOLS

STEEL TAPES

These tapes are graduated in feet and twelfths of a foot, also in inches and eighths of an inch, and are ⅜ inch wide. State length wanted.

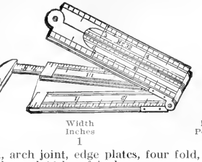
No. 510—Leather Case Length Feet	Diam. of Case, In.	Price Each	No. 505—Steel Case Length Feet	Diam. of Case, In.	Price Each
25	2⅞	**$4.90**	25	2¾	**$4.45**
50	3⅜	**6.00**	50	3¼	**5.40**
75	3⅞	**7.80**	75	3¾	**7.20**
100	4½	**10.20**	100	4¼	**9.25**

FOLDING STEEL POCKET RULES



Mfrs. No.	Length Feet	Width Inches	Price Per Dozen Rule Only	With Leather Case
450	1	⅜	**$5.40**	**$6.00**
450	2	⅜	**10.50**	**11.70**

BOXWOOD CALIPER RULES



Mfrs. No	Width Inches	Price Per Doz.
32	1	**$8.40**

12 inch, arch joint, edge plates, four fold, 8ths, 10ths, 12ths and 16ths of inches.

BOXWOOD RULES

2 Foot, Four Fold

Mfrs. No.	Width Inches	Price Per Doz
68	1	**$3.00**

Round joint, middle plates, 8ths and 16ths.

PIPE VISES AND CUTTERS

VULCAN CHAIN PIPE VISES

Vulcan Chain Pipe Vise

Mfrs. No.	Holds Pipe Size, In.	Price Each
1	⅛ to 2	$3.50
2	¼ to 4	7.50
4	⅜ to 8	18.00

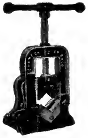
NYE PIPE VISES

Nye Pipe Vise

Description
For ⅛ to 2 Inch Pipe

Price Each
$6.00

CRANE MALLEABLE IRON PIPE VISES



Crane Pipe Vise

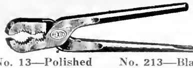
The malleable iron pipe vise is preferable to cast iron vise in every respect. Has interchangeable cut steel jaws, and is constructed to do the heaviest work.

Mfrs. No.	Holds Pipe Size, In.	Wt. Lb.	Price Each
1	⅛ to 2	16	$10.00
2	⅛ to 3	30	14.00

SAUNDERS PIPE CUTTERS

Mfrs. No.	Cuts Pipe Size, In.	Price Each	Ex. Wheels Price Each
..1	⅛ to 1	$3.00	$0.50
2	1 to 2	4.50	.60
3	2 to 3	11.00	1.10
4	2½ to 4	18.00	1.10

GAS PLIERS



No. 13—Polished Size In.	Wt.Lb. Per Doz.	Price Per Pair	No. 213—Black Size In.	Wt.Lb. Per Doz.	Price Per Pair
7	4½	$0.55	9	10	$0.70
8	7½	.60	10	11¼	.75

SLIP JOINT PLIERS

Has a wire cutter and screw driver handle. Temper color finish.

No. 406-6½

Mfrs. No.	Lgth. In.	Wt. Lbs. Per Doz.	Price Each
406-6½	6½	7	$2.00

LIGHTNING CONDUIT REAMER

Mfrs. No.	Cap. In.	Std. Pkg.	Wt. Lb.	Price Each
1242	¼ to 1	10	7/16	$1.50
1242½	¼ to 1¼	10	½	1.75
1244	½ to 2	10	1½	4.00

TOOLS

LINEMEN'S DRAW KNIVES

Blade In.	Price Per Doz.	Blade In.	Price Per Doz.
12	$21.60	14	$25.20

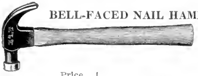
SOCKET FRAMING CHISELS

Size In.	Price Per Doz.	Size In.	Price Per Doz.	Size In.	Price Per Doz.	Size In.	Price Per Doz.
⅜	$9.00	1¼	$12.00	¾	$10.00	1¾	$14.50
½	9.00	1½	13.00	1	11.00	2	16.00

COMMON COLD CHISELS

Cut In.	Lgth. In.	Wt. Lbs. Per Doz.	Price Per Doz.	Cut In.	Lgth. In.	Wt. Lbs. Per Doz.	Price Per Doz.
⅜	5½	2	$3.00	¾	7½	11½	$6.00
½	6	4	3.65	⅞	8	18½	8.25
⅝	6½	7	4.75	1	8½	22½	11.75

BELL-FACED NAIL HAMMERS



Size	Weight	Price Per Doz.	Size	Weight	Price Per Doz.
2	13 Oz.	$23.00	1	1¼ Lb.	$21.00
1½	1 Lb.	22.00	....	....	....

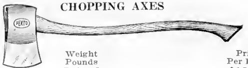
MACHINISTS' HAMMERS

Size	Weight	Price Per Doz.	Size	Weight	Price Per Doz.
000	8 Oz.	$12.00	1	1¼ Lb.	$13.50
00	12 Oz.	12.00	2	1½ Lb.	14.50
0	1 Lb.	12.50	3	1¾ Lb.	15.50

RIVETING HAMMERS

Size	Weight	Price Per Doz.	Size	Weight	Price Per Doz.
0	4 Oz.	$14.40	3	12 Oz.	$16.20
1	7 Oz.	15.00	4	15 Oz.	16.80
2	9 Oz.	15.60	5	18 Oz.	18.60

CHOPPING AXES

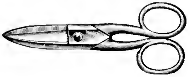


Weight Pounds	Price Per Doz.
5 to 6	$18.00
4 to 5	21.00

BROAD HATCHETS

Size	Size of Cut In.	Price Per Doz.
2	4½	$13.00
3	5	15.00
4	5½	16.50
5	6	18.50

TOOLS
ELECTRICIANS' SNIPS



Mfrs. No.	Description	Price Each
796	5 Inches Long, N. P.	$1.50

Mfrs. No.	Description	Price Each
271-12	9 Inches Long, 2 Inch Blade	$1.00
271-9	12 Inches Long, 4 Inch Blade	1.50
271-7	14 Inches Long, 4 Inch Blade	2.00

"NEW EASY" WIRE CUTTERS

Mfrs. No.	Length Inches	Cuts Inches	Price Each
1	24½	⅜	$5.00
2	30	½	7.00
3	36	⅝	9.00

COMPASS SAWS

State Length Wanted

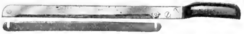
Length Inches	Price Per Doz.	Length Inches	Price Per Doz.
10	$8.50	16	$10.00
12	9.00	18	10.50
14	9.50	....	....

HAND, PANEL AND RIPSAWS

Crucible Steel, apple wood handle, skew or straight back.

Length Inches	Price Per Doz.	Length Inches	Price Per Doz
16	$29.00	22	$39.00
18	32.00	24	42.00
20	35.00	26	44.00

ELECTRICIANS' BX SAW



Made for standard 8 inch saws or special slotted saws supplied for quick replacing or deeper cuts. Especially designed for cutting steel armored cables, although can be successfully used for cutting fixture tubing, sawing lead sheath off cables, cleaning between segments in commutators, etc. Furnished with special slotted blades.

Complete with Blade—Price Each....................$1.50
Extra Blades—Price Per Gross........................10.00

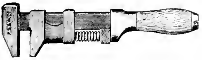
TOOLS
STILLSON WRENCHES

State Length Wanted

Takes Pipe, In.	Length Inches	Price Each	Takes Pipe, In.	Length Inches	Price Each
½	6	$2.00	2	18	$5.00
¾	8	2.25	2½	24	7.25
1	10	2.50	3½	36	13.50
1½	14	3.50	......	....	....

Wood handle, 6 to 14 inches; steel handle, 10 to 48 inches.

STANDARD WRENCHES



State Length Wanted

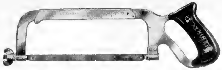
Length Inches	Price Per Doz.	Length Inches	Price Per Doz.
6	$10.00	12	$18.00
8	12.00	15	24.00
10	14.00	Specify Length Desired.	

TRIMO WRENCHES

State Length Wanted

Takes Pipe, In.	Length Inches	Price Each	Takes Pipe, In.	Length Inches	Price Each
½	6	$2.00	2	18	$5.00
¾	8	2.25	2½	24	7.25
1	10	2.50	3½	36	13.50
1½	14	3.50	......	....	....

HACK SAW FRAMES—Adjustable



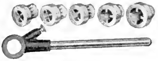
Mfrs. No.		Price Each
50A	Nickel Plated	$2.00

"AAA" HACK SAW BLADES

Mfrs. No.	Length Inches	Width Inch	No Teeth Per Inch	Wt. Lb. Per Gross	Price Per Gross
200	8	7/16	18	4½	$8.00
200	10	7/16	18	5½	10.00
200	12	7/16	18	6½	12.00
205	12	9/16	16	7¼	12.60
210	8	½	24	4½	8.00
210	10	½	24	5½	10.00
210	12	½	24	6½	12.00
215	8	½	32	4½	8.00
215	10	½	32	5½	10.00
215	12	½	32	6½	12.00
220	8	9/16	14	5	9.00
220	10	9/16	14	6½	10.20
220	12	9/16	14	8	12.60

TOLEDO PIPE THREADING DEVICES

TOLEDO NO. 00 PIPE THREADER

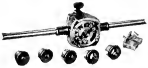


Capacity ⅛ to ¾ inch inclusive. Instant change of dies. Operates with ratchet. Produces perfect tapered threads. An excellent tool for small sizes.

Mfrs. No.	Description	Price Each
00	Capacity ⅛ to ¾ Inch	$19.00

TOLEDO NO. 0 PIPE THREADER

Capacity ⅛ to ¾ inch inclusive. Very easy to operate as it utilizes the Toledo receding feature for threading ½ and ¾ inch pipe. Left hand dies can be furnished on special order.



Mfrs. No.	Description	Price Each
0	Capacity ⅛ to ¾ Inch	$16.00

TOLEDO NO. 1 PIPE THREADER

Capacity 1 to 2 inches inclusive. Operates so easily a boy can cut a 2 inch thread with this tool. Adjustable for variations in size of fittings. Made for cutting right or left hand threads, but will not do both.

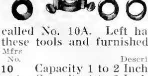
Mfrs. No.	Description	Price Each
1	Capacity 1 to 2 Inches	$24.00

TOLEDO NO. 1A PIPE THREADER

Capacity 1 to 2 inches inclusive. Like the No. 1, except equipped with ratchet. An excellent tool for the close corner job. Both No. 1 and No. 1A made for cutting right and left hand threads, neither tool will do both.

Mfrs. No.	Description	Price Each
1A	Capacity 1 to 2 Inches	$30.00

TOLEDO NO. 10 PIPE THREADER

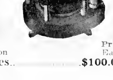


Capacity 1 to 2 inches inclusive. Threads all sizes with one set of dies. Operates very easily. Also made equipped with ratchet and then called No. 10A. Left hand dies can be used in these tools and furnished on special order.

Mfrs. No.	Description	Price Each
10	Capacity 1 to 2 Inches	$28.00
10A	Capacity 1 to 2 Inches	34.00

TOLEDO NO. 2 PIPE THREADER

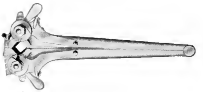
Capacity 2½ to 4 inches inclusive. A ratchet geared tool that operates easily. An excellent tool for these sizes.



Mfrs. No.	Description	Price Each
2	Capacity 2½ to 4 Inches	$100.00

TOLEDO PIPE CUTTING DEVICES

VOSPER PIPE CUTTER

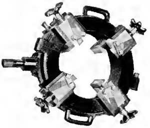


Capacity ½ to 2 inches inclusive. Utilizes self-feeding, steel, cutting knives that cut off the pipe with a straight, square end cut without burr.

Price Each $16.00

GEARED PIPE CUTTERS

Ratchet operated. Four steel cutting knives fed by hand operated feed wheels cut off the pipe true and square, without burr.



Mfrs. No.	Description	Price Each
250	Pipe Cutter, Capacity 2½ to 6 Inches	$80.00
300	Pipe Cutter, Capacity 4½ to 8 Inches	105.00
350	Pipe Cutter, Capacity 7 to 10 Inches	130.00
400	Pipe Cutter, Capacity 9 to 12 Inches	150.00

TOLEDO PIPE VISES, VISE MOUNTS AND ROLLER SUPPORT

PIPE VISES

The vises hold anything that will go in the self-centering jaws. Will not crush or mar pipe.

Mfrs. No.	Description	Price Each
1	Vise, Capacity ⅛ to 2½ Inches	$10.00
2	Vise, Capacity ⅛ to 4½ Inches	20.00

VISE MOUNTS AND ROLLER SUPPORT

Vise mounts are portable work benches that fold up like an umbrella. Roller support holds the long lengths of pipe.

Mfrs. No.	Description	Price Each
0	Vise Mount, Capacity Up to 1½ Inches	$12.00
1	Vise Mount, Capacity Up to 2 Inches	15.00
2	Vise Mount, Capacity Up to 4 Inches	18.00
.	Roller Support	5.00

CLAYTON & LAMBERT TORCHES
DOUBLE BLUNT NEEDLE
For Gasoline

No. **206.** Extra large and especially designed for brazing, tempering, and preheating and is an excellent torch for use in the garage or repair shop for heavy work such as heating and straightening automobile axles and frames, etc. The patented double-needle burner produces a tremendous heat. It is made of generator metal and has two needles, the lower is a shut off and the upper a cleaner needle made so that it is impossible to enlarge the orifice.

Mfrs. No.	Capacity Quarts	Weight Lbs.	Price Each
206	2	7¾	**$32.00**

No. **208.** The most powerful quart torch ever produced. It saves time in doing the work, is very economical in operation and is recommended for the general use of the mechanic. It is guaranteed to work perfectly in the wind and in weather far below zero. Burner has cast hook and support for holding a soldering copper.

Mfrs. No.	Capacity Quarts	Weight Lbs.	Price Each
208	1	5⅛	**$17.00**

No. **210.** A small powerful high quality torch producing an intensely hot pure blue flame. It can be used for small brazing and soldering, and is an excellent torch for the electricians and others, being easily handled in close work.

Mfrs. No.	Capacity Pints	Weight Lbs.	Price Each
210	1	4	**$15.40**

No. **48.** Is oblong, only 1⅞ inches thick, and especially adapted to requirements of automobile users, electricians and repair men, as it can be easily carried in any tool kit. Hinged supports at base prevent tipping over. Improved double needle burner produces an intensely hot blue flame. Can be used for close work where a round tank torch could not be used.

Mfrs. No.	Capacity Pints	Weight Lbs.	Price Each
48	1	4¼	**$18.40**

Note:—Burner hooks for all torches are removable.

CLAYTON & LAMBERT TORCHES
GASOLINE TORCHES

No. **32.** Is desirable where intense heat is wanted. Burner is made of special generator metal that holds the heat longer, having a chamber that super-heats the gas before it is burned. The intensely hot blue flame burns perfectly indoors or outside, under extreme conditions of wind and cold weather. Burner has rigid hook and support for holding soldering copper. Tank is fitted with improved patented brass pump.

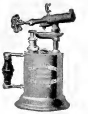
Mfrs. No.	Capacity Quarts	Weight Lbs.	Price Each
32	1	4¼	**$16.00**

No. **33.** Has improved powerful burner, of special generator metal, which produces a perfect blue flame, of intense heat, indoors or out. Has hook and support for holding soldering copper. Heavy gauge seamless drawn brass tank is fitted with patented automatic brass pump with automatic check valve.

Mfrs. No.	Capacity Pints	Weight Lbs.	Price Each
38	1	3	**$14.40**

No. **130.** Made to meet the demand for a low priced tool. It is good value for the money and while it is not as powerful as the better grade C. & L. torches it is guaranteed to give better results than any similar torch on the market. The burner is made of bronze metal having tapered burner tube, and producċs a steady blue flame. It has solid cast hook and support for holding a soldering copper.

Mfrs. No.	Capacity Quarts	Weight Lbs.	Price Each
130	1	4½	**$12.00**



No. **144.** Made to meet the demand for a cheap competitive tool. The tank is made of brass. Burner has an open generator that injects the air which mixes with the gas, producing a steady blue flame. Air pressure required is quickly produced by the automatic brass pump.

The No. 146 torch is exactly like No. 144 but smaller; pint size.

Mfrs. No.	Capacity Pints	Weight Lbs.	Price Each
144	2	4¼	**$10.00**
146	1	3	**9.00**

Note:—Burner hooks for all torches are removable.

CLAYTON & LAMBERT FIRE POTS

DOUBLE BLUNT NEEDLE

For Gasoline

No. 1. Improved double blunt needle fire pot is adapted to a greater variety of uses than any other fire pot made. Tank is of heavy gauge seamless drawn steel reinforced, tinned inside and out (rust proof) and fitted with patented cushion protection band preventing injury to the base of the tank and supplied with large funnel and filler plug having dust-proof cap. Swiveled burner permits moving the flame up or down. Will easily heat a pair of 12-lb. coppers and melt a pot of lead at the same time. Top section is removable making an open fire.

Mfrs. No.	Capacity Gal.	Weight Lbs.	Price Each
1	1	14	$27.20

For Gasoline

No. 71. Improved double blunt needle Fire Pot is noiseless, smokeless, and odorless. Has sub-flame for the generator which permits the heating flame to be turned low when not in use. Burner has double heating surfaces producing intensely hot blue flames, which burn from each side to the center. Heats 12-lb. coppers while melting a pot of metal. Tank is made of drawn steel, reinforced, tinned inside and out, and fitted with cushion protection band, preventing injury to base of tank, large funnel and filler plug having dust proof cap and improved automatic brass pump. Not affected by wind or storm.

Mfrs. No.	Capacity Gal.	Weight Lbs.	Price Each
71	1	16¼	$27.20

COIL FIRE POTS

For Gasoline

No. 22. Improved Coil Fire Pot. The tank is made of heavy gauge seamless drawn steel, tinned inside and out, making it absolutely rust proof and fitted with patented cushion protection band at base of tank. Supplied with brass ears, elbows and tees, patented pump, large funnel and filler plug with dust proof cap, also with patented three-piece coil cup and top plate, which enables the operator to remove top section by unscrewing three large brass nuts, exposing the burner and coil. There are no coil cup lugs or nuts to burn off. Uses less gasoline, produces more heat and will quickly melt a pot of metal.

Mfrs. No.	Capacity Gal.	Weight Lbs.	Price Each
22	1	12½	$15.00

CLAYTON & LAMBERT FIRE POTS

COIL FIRE POTS

For Gasoline

With Air Valve and Rubber Bulb

No. 12. Improved Coil Fire Pot. The tank is made of heavy gauge seamless drawn steel, tinned inside and out, making it absolutely rust proof and fitted with patented cushion protection band at base of tank. It is supplied with brass ears, elbows and tees, air valve and rubber bulb, large funnel and filler plug with dust-proof cap, also with patented three-piece coil cup and top plate, which enables the operator to remove top section by unscrewing three large brass nuts, exposing the burner and coil. There are no coil cup lugs or small nuts to burn off. Uses less gasoline, produces more heat and will quickly melt a pot of metal.

Mfrs. No.	Capacity Gal.	Weight Lbs.	Price Each
12	1	12½	$14.00

KEROSENE FIRE POTS

No. 221. Contains many improvements that place it in the lead among kerosene tools. It is perfect in construction and remarkable in heat-producing qualities, using but little fuel, and will give extra good service. The burner is made with a powerful generator that super-heats the kerosene gas before it is burned, securing perfect combustion of the fuel and the maximum degree of heat, burning with a clear blue flame, free from smoke and odor.

Mfrs No.	Capacity Gal.	Weight Lbs.	Price Each
221	¾	13½	$33.60

No. 223. Made especially for telephone and electric construction and cable work, and can be used for melting insulating materials, paraffine, rosin, lead, tin, zinc or solder or for boiling water. It has large cast top plate and a large hood or shield and extra heavy iron handle. Otherwise it is of the same construction as No. 221 fire pot.

Mfrs. No.	Capacity Gal.	Weight Lbs.	Price Each
223	¾	15	$37.60

COMMERCIAL LIGHTING EQUIPMENT
WESTINGHOUSE—SOL-LUX

SUSPENSION TYPE

The illustration shows the suspension type Sol-Lux. Where a general illumination is required and walls and ceilings are comparatively light, this form is recommended. Ten links of chain are furnished with each suspension type unit. Standard finish is antique brass. Special finishes are statuary bronze, Grecian antique and ivory white.

WITH REFLECTOR

The reflector may be added to either of the standard types by means of the bayonet-heel slots provided in the husk.

Reflector is of steel, porcelain enameled white. Its use is recommended where the ceilings are high or with dark walls and ceilings. The luminaire and reflector are listed separately; to obtain the combination illustrated refer to page where each size of unit with corresponding reflector is listed.

Antique Brass

Complete Unit	Mfrs. No. Consisting Of — Hanger	Globe and Cap	Lamp Rating Watts	Price Each
351601	**353821**	**351501**	75–100	**$11.75**
351602	**353821**	**351502**	100–150	**13.50**
351603	**353821**	**351503**	200	**15.75**
351604	**353829**	**351504**	300	**21.00**
351605	**353829**	**351505**	500	**25.00**
		Statuary Bronze		
351606	**353822**	**351501**	75–100	**12.75**
351607	**353822**	**351502**	100–150	**14.50**
351608	**353822**	**351503**	200	**16.75**
351609	**353830**	**351504**	300	**22.00**
351610	**353830**	**351505**	500	**26.00**
		Grecian Antique		
351611	**353823**	**351501**	75–100	**12.75**
351612	**353823**	**351502**	100–150	**14.50**
351613	**353823**	**351503**	200	**16.75**
351614	**353831**	**351504**	300	**22.00**
351615	**353831**	**351505**	500	**26.00**
		Ivory White		
351616	**353824**	**351501**	75–100	**12.75**
351617	**353824**	**351502**	100–150	**14.50**
351618	**353824**	**351503**	200	**16.75**
351619	**353832**	**351504**	300	**22.00**
351620	**353832**	**351505**	500	**26.00**

Packing—Luminaires are packed as follows: Globe with cap in individual cartons.

Hangers—One to a carton; five cartons to a standard package.

Shipping Weights—Globes, see globe listings. Hangers, suspension type, standard package, 17 pounds.

COMMERCIAL LIGHTING EQUIPMENT
WESTINGHOUSE—SOL-LUX
SUSPENSION TYPE

WITH SILK SHADE

Beautiful silk shades add greatly to the appearance of the Sol-Lux luminaire and do not appreciably affect the light output.

Shades are provided with supporting brackets which are easily attached to the husk. Old gold, old rose, light blue and tan are regularly furnished; special colors may be obtained on order.

Silk Shades

Old Gold Mfrs. No.	Price Each	Luminaire Size Watts	Pkg. Wt.	Old Rose Mfrs. No.	Price Each
353424	**$18.50**	75–100	**5**	**353425**	**$18.50**
353424	**18.50**	100–150	**5**	**353425**	**18.50**
353429	**20.50**	200	**6**	**353431**	**20.50**
353430	**24.50**	300	**7**	**353432**	**24.50**
353430	**24.50**	500	**7**	**353432**	**24.50**
Light Blue				**Tan**	
353426	**18.50**	75–100	**5**	**353427**	**18.50**
353426	**18.50**	100–150	**5**	**353427**	**18.50**
353433	**20.50**	200	**6**	**353435**	**20.50**
353434	**24.50**	300	**7**	**353436**	**24.50**
353434	**24.50**	500	**7**	**353436**	**24.50**

WITH PARCHMENT SHADE

Where a more simple form of decoration is desired or in locations such as smoking rooms, where silk would be inappropriate, parchment shades are recommended.

Shades are provided with supporting brackets which are easily attached to the husk. Plain parchment shades are standard, decorated shades may be obtained on order.

Parchment Shades

Mfrs. No.	Luminaire Size Watts	Carton	Shpg. Wt.Lb.	Price Each
353428	75–100	**1**	5	**$15.50**
353428	100–150	**1**	5	**15.50**
353437	200	**1**	6	**19.50**
353438	300	**1**	7	**23.00**
353438	500	**1**	7	**23.00**

SOL-LUX CHAINS

Eight links of chain, one foot. Sold for replacement purposes only.

Mfrs. No.	Finish	Price Per Link
352947	Antique Brass	**$0.05**
353837	Statuary Bronze	**.05**
353838	Grecian Antique	**.05**
353839	Ivory White	**.05**

COMMERCIAL LIGHTING EQUIPMENT

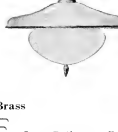
WESTINGHOUSE—SOL-LUX

CEILING TYPE

The ceiling type is of the same construction as the suspension type so that harmony is assured in installations where the use of both types is necessary. The standard finish is antique brass. Special finishes are statuary bronze, Grecian antique and ivory white.

WITH REFLECTOR

This type is obtained by adding the reflector to a ceiling type. Reflector is of steel, porcelain enameled white. Luminaire and reflector are listed separately; to obtain the combination illustrated, refer to page where each size of unit with the corresponding reflector is listed.



Antique Brass

Complete Unit	Mfrs. No. Consisting Of Hanger	Globe and Cap	Lamp Rating Watts	Price Each
351621	**353825**	**351501**	75–100	**$10.75**
351622	**353825**	**351502**	100–150	**12.50**
351623	**353825**	**351503**	200	**14.75**
351624	**353833**	**351504**	300	**20.00**
351625	**353833**	**351505**	500	**24.00**
		Statuary Bronze		
351626	**353826**	**351501**	75–100	**11.75**
351627	**353826**	**351502**	100–150	**13.50**
351628	**353826**	**351503**	200	**15.75**
351629	**353834**	**351504**	300	**21.00**
351630	**353834**	**351505**	500	**25.00**
		Grecian Antique		
351631	**353827**	**351501**	75–100	**11.75**
351632	**353827**	**351502**	100–150	**13.50**
351633	**353827**	**351503**	200	**15.75**
351634	**353835**	**351504**	300	**21.00**
351635	**353835**	**351505**	500	**25.00**
		Ivory White		
351636	**353828**	**351501**	75–100	**11.75**
351637	**353828**	**351502**	100–150	**13.50**
351638	**353828**	**351503**	200	**15.75**
351639	**353836**	**351504**	300	**21.00**
351640	**353836**	**351505**	500	**25.00**

Packing—Luminaires, globes and hangers, same as for suspension type. Shipping weight of hangers, standard package, 15 pounds.

REFLECTORS

Mfrs. No.	Luminaire Size Watts	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
353840	75–100	1	5	25	**$3.50**
353841	100–150	1	5	25	**4.00**
353842	200	1	5	25	**5.00**
353794	300	1	5	30	**7.50**
353794	500	1	5	30	**7.50**

GLOBES AND GLOBE CAPS

Size Watts	Globes†* Mfrs. No.	Pkg. Wt.	Price Each	Globe Caps†* Mfrs. No.	Diam. Globe	Price Each
75–100	**351501**	6	**$4.50**	**352956**	10	**$0.60**
100–150	**351502**	8	**6.25**	**352956**	12	**.60**
200	**351503**	10	**8.50**	**352955**	14	**.75**
300	**351504**	12	**11.00**	**352954**	16	**1.00**
500	**351505**	15	**15.00**	**352954**	18	**1.00**

†Includes bottom cap.
*Sold for replacement purposes only.

COMMERCIAL LIGHTING EQUIPMENT

WESTINGHOUSE—SOL-LUX

ENGINEERING DATA

Overall Heights

Luminaire Size Watts	Suspension Type Overall, Inches	Ceiling Type Overall, Inches
75	35	16
100–150	36	17
200	38	19
300	40	21
500	41	22

TABLE OF REQUIRED WATTS PER SQUARE FOOT

Suspension Type

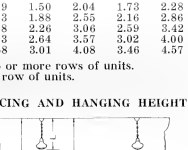
Desired Illumination in Foot Candles	Light Walls and Ceiling Watts Per Square Foot A	B	Medium Walls and Ceiling Watts Per Square Foot A	B	Dark Walls and Ceiling Watts Per Square Foot A	B
2	.46	.38	.55	.46	.68	.55
4	.92	.75	1.10	.92	1.36	1.19
6	1.38	1.13	1.64	1.38	2.04	1.64
8	1.84	1.50	2.19	1.84	2.72	2.19
10	2.30	1.88	2.74	2.30	3.40	2.74
12	2.76	2.26	3.29	2.76	4.07	3.29
14	3.23	2.64	3.85	3.23	4.76	3.85
16	3.69	3.01	4.39	3.69	5.44	4.39

Suspension Type with Reflector

2	.45	.38	.51	.43	.57	.47
4	.89	.75	1.02	.86	1.14	.95
6	1.34	1.13	1.53	1.30	1.71	1.43
8	1.79	1.50	2.04	1.73	2.28	1.90
10	2.23	1.88	2.55	2.16	2.86	2.38
12	2.68	2.26	3.06	2.59	3.42	2.86
14	3.13	2.64	3.57	3.02	4.00	3.33
16	3.58	3.01	4.08	3.46	4.57	3.81

B—Two or more rows of units.
A—One row of units.

SPACING AND HANGING HEIGHTS



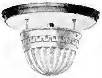
Suspension Type

Plane of Work (H) Feet	Ceiling Hght.Above Floor* (C) Feet	Recom.Spacing—Outlet to Outlet (S) Feet	Outlet to Wall† (W) Feet	Overall Length of Luminaire (L) Inches	Links Required‡
5½	8	7½	2½	24	2
6½	9	8	3	27	4
7½	10	9	3	30	6
8½	11	10	3½	33	8
9½	12	11	3½	36	10
10½	13	12	4	42	14
11½	14	12½	4½	48	18

*Assuming a plane of work (P) 2½ feet above floor, otherwise this column should be ignored.
†Where desks and drafting tables may be placed next to wall, otherwise W=S/2.
‡Applies for 150 watt globe; one additional link required with 75-100 watt globe; one less link required with 200 watt globe; three less links required with 300 and 500 watt globes.

BRASCOLITE LIGHTING FIXTURES

TYPE AF


Type AF

Reflector All White Glazed Porcelain Enamel.

Type AFB same as Type AF — with band finished leather bronze furnished without additional charge.

*Medium Socket.
†Mogul Socket.

Pull switch furnished at **$1.25** additional.

Cat No.	Size of Lamp Watts	Dimen., In. Out. Diam	Bowl	Shpg. Wt., Lbs.	Price Each
251	*40 to 75	10	6¼	7	**$ 8.00**
252	*100 to 200	14	8¼	12	**11.00**
253	*200	18	11	22	**15.00**
254	†300	18	11	22	**15.00**
255	†400 to 500	22	14	42	**23.00**

TYPE AH

Reflector same as Type AF—Hanger Leather Bronze Finish.

Type AHB same as Type AH—with reflector band leather bronze finish.

*Medium Socket.
†Mogul Socket.

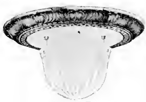
Standard length, 4 feet. Additional length, per foot, **$0.80**.

Pull switch furnished at **$1.25** additional.

Type AH

Cat. No.	Size of Lamp Watts	Dimen., In. Out. Diam	Bowl	Shpg. Wt., Lbs.	Price Each
256	*40 to 75	10	6¼	12	**$12.00**
257	*100 to 200	14	8¼	17	**15.00**
258	*200	18	11	26	**19.00**
259	†300	18	11	26	**19.00**
260	†400 to 500	22	14	47	**27.00**

TYPE WF


Type WF

Ornamental ring. Brass Metal. Finished Antique Gold. Fret in Old Ivory. Reflector, White Glazed Porcelain Enamel.

*Medium Socket.

†Mogul Socket.

Pull Switch furnished at **$1.25** additional.

Cat. No.	Size of Lamp Watts	Dimen., In. Out. Diam	Bowl	Shpg. Wt., Lbs.	Price Each
261	*100-200	17	8¼	15	**$17.00**
262	*200	21	11	25	**24.00**
263	†300	21	11	25	**24.00**

BRASCOLITE LIGHTING FIXTURES

TYPE YFF

Type YFF

Ornamental Ring and Hanger. Brass Metal. Finished Antique Gold. Fret in Old Ivory. Reflector, White Glazed Porcelain Enamel.

*Medium Socket.

†Mogul Socket.

Standard Length, 4 feet. Additional length, per foot, **$0.80**.

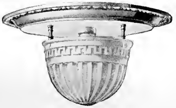
Pull Switch furnished for **$1.25** additional.

Cat. No.	Size of Lamp Watts	Dimen., In. Out. Diam	Bowl	Shpg. Wt., Lbs.	Price Each
264	*100-200	17	8¼	21	**$21.00**
265	*200	21	11	31	**28.00**
266	†300	21	11	31	**28.00**

TYPE WD

Reflector, White Glazed Porcelain Enamel. Band, Leather Bronze Finish.

*Medium Socket.
†Mogul Socket.
Pull Switch furnished at **$1.25** additional.


Type WD

Cat. No.	Size of Lamp Watts	Dimen., In. Out. Diam	Bowl	Shpg. Wt., Lbs.	Price Each
267	*40–75	11	6¼	7	**$ 9.00**
268	*100–200	15	8¼	12	**12.00**
269	*200	19	11	22	**16.00**
270	†300	19	11	22	**16.00**
271	†400–500	23	14	42	**24.00**

TYPE YD

Type YD

Reflector, White Glazed Porcelain Enamel. Band and Hanger, Leather Bronze Finish.

*Medium Socket.

†Mogul Socket.

Standard length, 4 feet. Additional length, per foot, **$0.80**.
Pull Switch furnished at at **$1.25** additional.

Cat. No.	Size of Lamp Watts	Dimen., In. Out. Diam	Bowl	Shpg. Wt., Lbs.	Price Each
272	*40–75	11	6¼	12	**$13.00**
273	*100–200	15	8¼	17	**16.00**
274	*200	19	11	26	**20.00**
275	†300	19	11	26	**20.00**
276	†400–500	23	14	47	**28.00**

BRASCOLITE LIGHTING FIXTURES

Type STEQ

MAGIC-LITE

Reflector all white glazed porcelain enamel.

*Medium Socket.

†Mogul Socket.

Pull Switch furnished at **$1.25** additional.

Type	Watts	Dimen., In. Out. Diam.	Globe Diam.	Shpg. Wt.Lbs.	Price Each
STEQ	*50–75	10	7	7	**$6.00**
STEI	*100–200	14	8½	8	**8.00**
STED	†300	14	10½	10	**10.50**
STER	†500	18	14	14	**15.35**

Reflector all white glazed porcelain enamel. Hanger, leather bronze finish.

Standard length, 4 ft. Additional lengths, per foot, **$0.80.**

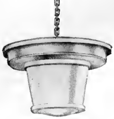
*Medium Socket.

†Mogul Socket.

Pull Switch furnished at **$1.25** additional.

Type STET

Type	Watts	Dimen., In. Out. Diam.	Globe Diam.	Shpg. Wt.Lbs.	Price Each
STET	*50–75	10	7	7	**$8.00**
STEG	*100–200	14	8½	8	**10.00**
STEB	†300	14	10½	9	**12.50**
STEU	†500	18	14	12	**17.35**


Type STFB

Upper part of globe extends through reflector and illuminates ceilings. Reflector, all white glazed porcelain enamel. Hanger, leather bronze finish.

Standard length, 4 feet. Additional lengths, per foot, **$0.80**.

*Medium Socket.

†Mogul Socket.

Pull Switch furnished at **$1.25** additional.

Type	Watts	Dimen., In. Out. Diam.	Globe Diam.	Shpg. Wt.Lbs.	Price Each
STFB	*50–75	10	7	7	**$8.75**
STEH	*100–200	14	8½	8	**11.00**
STEC	†300	14	10½	9	**13.75**
STFC	†500	18	14	12	**18.60**

CEILING FLANGE WITH MAGIC-LITE GLASS

White Porcelain Enameled Steel

Type	Diam., In. Ceiling Flange	Globe	Shpg. Wt.Lbs.	Price Each
50-75 Watts, Medium Socket				
STEX	8¾	7	3	**$3.95**
100-200 Watts, Medium Socket				
STEF	8¾	8½	4	**5.10**
300 Watts, Mogul Socket				
STEA	10¾	10½	6	**7.05**
500 Watts, Mogul Socket				
STEY	10¾	14	9	**9.70**

Type STEX

The two large size units can be furnished with one extra socket for 25-watt signal or night light at **$1.00** additional. Pull switch furnished for above at **$1.25** additional.

BRASCOLITE LIGHTING FIXTURES

TYPE SF

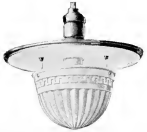
Type SF

Band finish, Leather Bronze. Reflector, White Glazed Porcelain Enamel. Emblematic or Trade Mark. White Etched Bowls with Emblem in Full Colors. Prices listed apply to any National Trade Mark or Emblem. Where individual Trade Mark, Monogram or Emblem is required, an extra charge of **$25.00** net will be made for etching plate for each size bowl from which any number of bowls may be made.

Cat. No.	Size of Lamp Watts	Dimen., In. Out. Diam.	Bowl	Shpg. Wt.Lbs.	Price Each
344	*75-200	15	9	7	**$28.60**
345	*200	19	11½	23	**36.60**
346	†300	19	11½	23	**36.60**
347	†400-500	23	16	36	**53.25**

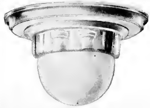
TYPE GC

Price is for Fixture only, Socket not included, as its purpose is to attach to old Sockets by means of Standard Shade Holder.


Type GC

Cat. No.	Size of Lamp Watts	Dimen., In. Out. Diam.	Bowl	Fitter	Shpg. Wt.Lbs.	Price Each
348	40 to 75	10	6¼	2¼	7	**$8.00**
349	100–150	14½	8¼	3¼	10	**10.00**

TYPE BCH


Type BCH

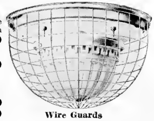
Bowl — lower part Opal Cased, upper part Clear, Reflector, White Glazed Porcelain Enamel.

Pull switch for one light furnished for **$1.25** additional. Pull switch for control of two lights **$2.50** additional. The additional lights in larger size fixture are for purpose of night or special requirements in addition to the one regular service light.

Cat. No	Size Watts	Outside Dia. In.	Bowl In.	Auxiliary Lights	Shpg. Wt.Lbs.	Price Each
350	40-75	10	8	None	10	**$9.50**
351	100-150	14	9	One	12	**13.50**
352	100-150	14	9	Two	12	**14.50**

WIRE GUARDS
For Use with Brascolites

Guard No	Shpg. Wt. Lbs.	Price Each
Size, 40-75 Watts		
G-1797	6	**$5.00**
Size, 100-150 Watts		
G-1798	8	**7.50**
Size, 200-300 Watts		
Size, 400-500 Watts		
G-1799	10	**10.00**
G-1800	12	**15.00**


Wire Guards

BRASCOLITE LIGHTING FIXTURES

Type STGO

CEILING FITTING WITH MAGIC-LITE GLOBE

Furnished in glazed porcelain enamel. Ceiling fitting furnished in either white or brown porcelain enamel. Pull socket may be furnished for medium socket types at **$0.75** additional.

Type	Watts	Diam. Flange	Size Holder	—Globe Size— Globe	Diam.	Dpth.	Shpg. Wt. Lbs.	Price Each
STGO	*50–75	6½	4	G-2141	7	7	3	**$4.40**
STGP	*100–200	6½	5	G-2142	9	9	4	**5.50**
STGQ	†300	6½	6	G-2143	11	10	6	**8.00**
STGR	†500	6½	6	G-2144	14	10	9	**9.90**

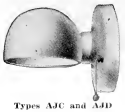
*Medium socket. †Mogul socket.

AGLITES

Types AJK and AJG

Type	Description	Price Each
AJK	Without Switch	**$2.55**
AJG	With Switch	**3.75**

Shipping weight, 2 lbs.



Types AJC and AJD

Type	Description	Price Each
AJC	Without Switch	**$4.00**
AJD	With Switch	**5.20**

Shipping weight, 3 lbs.

Types AJA and AJB

Type	Description	Price Each
AJA	Without Switch	**$4.00**
AJB	With Switch	**5.20**

Shipping weight, 3 lbs.

Type STJT

TYPE STJT

Flush Wall Plate in white porcelain enamel finish; white opal shade; flush plug receptacle; universal toggle switch.

Price Each.....**$10.00**

BRASCOLITE—AGLITE JR.

Type AGW

The canopies and bases of the Aglite Jr. equipment are of white porcelain enameled steel. Shades of white glass.

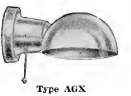
Units are assembled and installed directly to house wires by means of invisible screw collars. No set screws or screw heads visible. Easily and quickly installed, no metal parts to tarnish or impede cleaning of unit.

Type No.	Description	Shpg. Wt. Lbs.	Price Each
AGW	Without Switch	2	**$3.20**
AGWS	With Switch	2	**3.70**

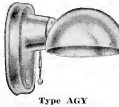
Canopy 4½ inches diameter. Shade 6¾ inches diameter. Standard package, carton of 4. Wire guards can be furnished for the above at **$4.00** additional.

Type No.	Description	Price Each
AGX	No Switch	**$3.20**
AGXS	With Switch	**3.70**

Canopy 4½ inches diameter. Extends 8¾ inches. Standard package, carton of 4. Shipping weight, 2 lbs. Wire guards can be furnished for the above at **$4.00** additional.



Type AGX



Type AGY

Type No.	Description	Price Each
AGY	No Switch	**$5.50**
AGYS	With Switch	**6.00**

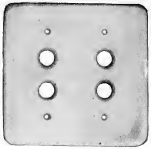
Canopy 6½ inches high, 4½ inches wide. Extends 8½ inches. Shipping weight, 3 lbs.

LUMO-VITRO SWITCH PLATES

Porcelain Enameled

Mfrs. No.	No. Gangs	Std. Pkg.	Price Each
S-20043	1	25	**$0.25**

No. S-20043



No. 20044

Mfrs. No.	No. Gangs	Std. Pkg.	Price Each
S-20044	2	25	**$0.60**
S-20045	3	25	**.90**

Mfrs. No.	No. Gangs	Std. Pkg.	Price Each
S-20046	1	25	**$0.25**

Plates can be furnished up to 12 gangs at **$0.50** per gang. Packed in individual cartons, including nickel plated screws. Less than standard package 20% additional. Plates also furnished in pale pink, pale blue, brown, gray and old ivory at **$0.10** per plate additional. Can be furnished for any type toggle or signal switches at same price.

No. S-20046

WAKEFIELD RED SPOT STANDARD HANGERS

No. 1370-A

FOR COMMERCIAL LIGHTING

Red Spot hangers are carefully and correctly designed to obtain, when installed, the illuminating efficiency calculated by the manufacturer of the glassware used. They can be used with any urn shaped glassware.

Features: — ⅝-inch female hickey; oversize canopy completely covers insulating joint and outlet box; ample wireway for any requirement; extra heavy brass chain; notched terminal loop gives perfect balance to unit; keyhole slots permit easy removal of socket for wiring; two-position straps insure correct placement of lamp; bevel-pointed holder screws cannot loosen; snug fitting holder excludes dirt and insects; Red Spot name plate guarantees quality.

Mfrs. No.	Size Fitter, Inches	Type Socket	Length Over All, Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each Including Receptacle
1370-A	4	Medium	24	24	52	**$2.75**
1350-A	6	Medium	24	12	31	**3.50**
1350-B	6	Mogul	24	12	35	**4.25**
1380-B	8	Mogul	24	12	60	**7.00**

Standard finish, E. S. bronze. Brush brass, 5% extra.

STANDARD CEILING UNIT

Similar in design, construction and quality to chain units. Will give uniformity to finished job. For use in places where there is not sufficient clearance for the chain hangers.

No. 1371-A

Mfrs. No.	Size Fitter, Inches	Type Socket	Length Over All, Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each Including Receptacle
1371-A	4	Medium	5	24	28	**$2.00**
1351-A	6	Medium	5½	12	28	**3.00**
1351-B	6	Mogul	5½	12	32	**3.75**
1381-B	8	Mogul	9	12	40	**6.00**

WALL BRACKET

A complete line of Red Spot accessory units is available to take care of the requirements for small space lighting such as corridors, basements, lavatories, rest rooms, balconies and stairways. Made in wall, ceiling and chain types. Same design and finish as regular Red Spot line.

No. 1323-A

Mfrs. No.	Size Fitter, Inches	Type Socket	Length Over All, Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each Including Receptacle
1323-A	2¼	Medium	7½	24	30	**$1.85**
1333-A	2¼	Medium	8	24	31	**2.00**
1373-A	4	Medium	9	24	33	**2.25**

WAKEFIELD RED SPOT ORNAMENTAL HANGERS

No. 1450-A

FOR URN SHAPED GLASSWARE

Designed for high class installations, yet moderately priced. Have the same features which are found in the standard Red Spot hangers. Canopy and holder of 22 gauge metal, the chain is of extra heavy brass, substantial terminal links and decorative stem. Supplied in a variety of finishes. Ideal for banks, high grade department stores, and main corridors of office buildings.

Tassels supplied when specified, **$1.00** extra list.

Mfrs. No.	Size Fitter, Inches	Type Socket	Length Over All, Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each Including Receptacle
1450-A	6	Medium	24	12	41	**$7.50**
1450-B	6	Mogul	24	12	44	**8.25**
1470-A	4	Medium	24	24	66	**6.00**
1480-B	8	Mogul	24	12	60	**11.00**

ORNAMENTAL CEILING UNIT

For use under balconies and stairways and in similar locations where there is not sufficient clearance for the chain hangers. These are similar in design, construction, quality and ornamentation to the ornamental chain hangers and give uniformity to the finished job.

No. 1151-A

Mfrs. No.	Size Fitter, Inches	Type Socket	Length Over All, Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each Including Receptacle
1451-A	6	Medium	5	12	37	**$7.00**
1451-B	6	Mogul	5	12	40	**7.75**
1471-A	4	Medium	4	24	45	**5.00**
1481-B	6	Mogul	9	12	40	**10.00**

KITCHEN UNIT

A special ceiling type suspension, for use with any urn shaped glassware, has been perfected for kitchens and bathrooms. Finished in baked white enamel. Has all the features of the regular Red Spot line and in addition has eyelet for pull chain and a special strap for holding canopy switch in correct position.

CARTON PACKING

All Red Spot hangers are packed in individual cartons, each part carefully inspected, wrapped, and checked, and the boxes plainly labeled. The packing provides for easy handling, prevents loss of parts, makes an orderly item to stock, and insures against damage, loss or deterioration.

SECHRIST LIGHTING FIXTURES

B-293

NO. B-293
One Light

Description	Price Each
Black Finish, 8x4 Inch Ball	$12.00
Verde Green Finish, 8x4 Inch Ball	14.00

B-102

NO. B-102
One Light

Description	Price Each
Black Finish, 6x3¼ Inch Ball	$4.00
Verde Green Finish, 6x3¼ Inch Ball	$5.00

B-294

NO. B-294
One Light

Description	Price Each
Black Finish, 6x3¼ Inch Ball	$4.60
Verde Green Finish, 6x3¼ Inch Ball	5.60

B-309

NO. B-309
One Light

Description	Price Each
Black Finish, 8x4 Inch Ball	$8.80
Green Verde Finish, 8x4 Inch Ball	10.30

SECHRIST LIGHTING FIXTURES

B-106

NO. B-106
One Light

Description	Price Each
Brush Brass Finish, 6x3¼ Inch Crystal Stripe Ball	$2.50
Black Finish, 6x3¼ Crystal Stripe Ball	2.50

P-5198

NO. P-5198
One Light

Description	Price Each
Black Finish, Amber Glass	$7.00
Verde Green Finish, Amber Glass	8.00

B-185

NO. B-185
One Light
White Enamel

Description	Price Each
Keyless Socket, Half Opal Shade	$4.20
Pull Socket, Half Opal Shade	5.60

B-186

NO. B-186
One Light
White Enamel

Description	Price Each
Keyless Socket, Opal Bell Shade	$4.20
Pull Socket, Opal Bell Shade	5.60

B-469

NO. B-469
One Light
White Enamel

Description	Price Each
Pull Socket, Convenience Outlet, Half Opal Shade	$11.50

Convenience outlet is always in circuit ready for use with electric iron, toaster, heater, etc.

SECHRIST LIGHTING FIXTURES

No. B-134

NO. B-134
One Light
Brush Brass Finish

Mfrs. No.	Description	Price Each
B-134	Keyless Socket, Acorn Ball	$3.10

No. B-133

NO. B-133
One Light
Brush Brass Finish

Description	Price Each
Keyless, 7 Inch Glass Shade	$2.10
Keyless, Tinted, 7 Inch Shade	2.60

No. B-314

No. B-149

NO. B-149
One Light
Ball Lamp Bracket

Mfrs. No.	Description	Price Each
B-149	Pull Chain Socket	$11.00

Finished in brown color and gold, iron and polychrome. Wired complete.

NO. B-316

One light 34 inches long with 7 inch glass shade, key socket.

Mfrs. No.	Description	Price Each
B-316	Brush Brass	$3.30
B-316	Old Ivory	3.60

NO. B-138
Exit Light

Brush brass; one light, three sided ruby exit ball.

Fire Escape Light

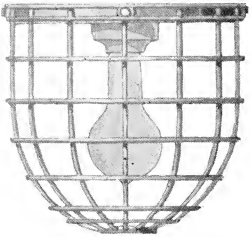
Brush brass; one light with fire escape ball.

Price Each $5.80

No. B-138

SECHRIST LIGHTING FIXTURES

NO. B-314—GYMNASIUM FIXTURE



White Enamel Ceiling Plate

Mfrs. No.	Size Inches	Description	Price Each
B-314	10x10	Tinned Wire Guard	$8.00
B-314	12x12	Tinned Wire Guard	9.00
B-314	14x14	Tinned Wire Guard	10.00
B-314	16x16	Tinned Wire Guard	12.00
B-314	18x18	Tinned Wire Guard	15.00

No. B-104

NO. B-104
One Light

With amber glass in lantern.

Mfrs. No.	Description	Price Each
B-104	Black	$11.00
B-104	Verde Green	12.00

NO. B-152
One Light

Candle bracket; pull chain socket. Finished in brown color and gold, iron and polychrome.

Mfrs. No.	Description	Price Each
B-152	Candle Bracket	$11.00

No. B-152

SECHRIST LIGHTING FIXTURES

Fixtures finished in brown color and gold, gold and gray and polychrome, wrought gold. Wired complete.

No. P-5009

No. P-5009

One light beam light, keyless socket. Price Each **$4.00**

No. P-5006

No. P-5006

One light ball lamp bracket, pull chain socket. Price Each..... **$9.00**

No. P-5001

Four light ball lamp drop, keyless sockets. Price Each **$24.00**

No. P-5001

No. P-5005

NO. P-5005
Candle Type

Two light, candle type, keyless sockets.

Mfrs. No.		Price Each
P-505		$15.00

Finished in brown color and gold, gold and gray and polychrome, wrought gold. Wired complete.

SECHRIST LIGHTING FIXTURES

No. 5007

No. 5008

Mfrs. No.	Description	Price Each
P-5007	One Light Candle Bracket, Pull Chain Socket	$10.00
P-5008	Two Light Candle Bracket, Pull Chain Sockets	12.00

NO. P-5157—FIVE LIGHT

Mfrs. No.	Description	Price Each
P-5157	Five Light Ball Lamp Drop, Keyless Sockets	$29.00

Fixtures finished in brown color and gold, gold and gray and polychrome, wrought gold. Wired complete.

SECHRIST LIGHTING FIXTURES

Fixtures finished in brown color and gold, gold and gray and polychrome, wrought gold. Wired complete.

No. 5158

CANDLE TYPE

Mfrs. No.	Description	Price Each
P-5158	Five Light	$29.00
P-5003	Four Light	24.00

CEILING TYPE

No. P-5002

Mfrs. No.	Description	Price Each
P-5102	Four Light Ceiling Type	$24.00
P-5156	Five Light Ceiling Type	29.00

SECHRIST LIGHTING FIXTURES

Fixtures finished in brown color and gold or iron and polychrome. Wired complete.

No. P-5129

Ball Lamp Type

Mfrs. No.	No. of Lights	Price Each
P-5129	5	$48.00
P-5128*	4	41.00

Candle Type

P-5130*	4	44.00
P-5131*	5	52.00

Ceiling Type

P-5147*	5	47.00
P-5148*	4	40.00

*To match P-5129.

DROP BALL LAMP TYPE

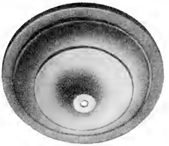
Two light drop ball lamp type, keyless sockets. Finished in brown color and gold, gold and gray and polychrome, wrought gold. Wired complete.

Mfrs. No.	No. of Lights	Price Each
P-5004	2	$15.00

No. P-5004

SECHRIST LIGHTING FIXTURES

PARTS—Brush Brass Finish



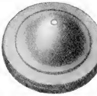
No. D-10

STEEL PAN

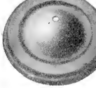
Mfrs. No.	Size Inch	Price Each
D-10	10	$0.80
D-10	12	.90
D-10	14	1.10
D-10	16	1.50

DEEP STEEL CANOPY

Mfrs. No	Size Inch	Price Each
D-11	6	$0.35



No. D-11



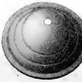
No. D-12

SHALLOW STEEL CANOPY

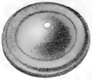
Mfrs. No	Size Inch	Price Each
D-12	6	$0.35

SPUN STEEL CANOPY

Mfrs. No.	Size Inch	Price Each
D-13	5	$0.30



No. D-13



No. D-14

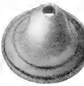
SHALLOW STEEL CANOPY

Mfrs. No	Size Inch	Price Each
D-14	5	$0.30

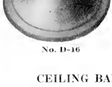
STAMPED CANOPY

¾ Inch Bushing

Mfrs. No	Size Inch	Price Each
D-15	..	$0.35
Without Bushing		
D-15	..	.30



No. D-15



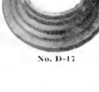
No. D-16

CEILING BAND

Mfrs No	Size Inch	Price Each
D-16	2¼	$0.35

CEILING BAND

Mfrs No	Size Inch	Price Each
D-17	3¼	$0.35



No. D-17

SECHRIST LIGHTING FIXTURES

PARTS—Brush Brass Finish

No. D-18

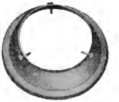
CEILING BAND

Mfrs. No.	Size Inch	Price Each
D-18	4	$0.40

CLOSED HOLDER

Mfrs No.	Size Inch	Price Each
D-19	3¼	$0.40

No. D-19



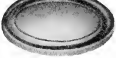
No. D-20

CLOSED HOLDER

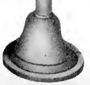
Mfrs. No	Size Inch	Price Each
D-20	2¼	$0.20

STAMPED OVAL BACK

Mfrs. No.	Size Inch	Price Each
D-21	6x4¼	$0.50



No. D-21



No. D-36

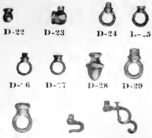
BRACKET

Mfrs. No.	Description	Price Each
D-36	Bracket, Brush Brass	$0.90

All parts listed furnished only in brushed brass finish.

LOOPS

Mfrs. No.	Description	Price Each
	⅛ Inch Knob	
D-22		$0.10
	End Nozzle	
D-23		.15
	⅛ Inch M. Steel Loop	
D-24		.03
	⅛ Inch F. Steel Loop	
D-25		.03
	⅛ Inch M. Br. Loop	
D-26		.06



D-22 D-23 D-24 D-25 D-26 D-27 D-28 D-29 D-30 D-31 D-32

Mfrs. No	Description	Price Each
D-27	⅛ Female Brass Loop	$0.06
D-28	⅛ Spun Knob	.16
D-29	⅜ Male Brass Loop	.18
D-30	⅜ Female Brass Loop	.18
D-31	⅛ Hook	.08
D132	Bowl Clip	.15

D-33

D-34

D-35

CHAIN

Mfrs. No	Description	Price Each
D-33	Fancy	$0.12
D-34	Regular	.10
D-35	Large	.22

GLASSWARE

BALL GLOBES

No. B-57
Crystal Roughed Inside

Diam. In.	Size Holder In.	Price Per Doz.
10	3½ to 8	$12.75
12	4 to 9	18.75
14	5 to 10	28.50
16	6 to 10	46.50
18	6 to 12	76.50
20	8 to 12	144.00

Nova

6	3½		2.50
7	3¼ to	4	3.60
8	3¾ to	6	5.40

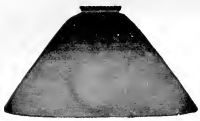
ELECTRIC

Nova

Mfrs. No.	Diam. In.	Dpth. In.	Size Holder, In.	Price Per Doz.
300	5	4¼	2¼	$2.25

GREEN GLASS SHADE

White Inside



Mfrs. No.	Diam. In.	Size Holder In.	Price Per Doz.
E-67	7	2¼	$ 7.50
E-67	10	2¼	12.00

GREEN PORCELAIN HALF SHADE

White Inside

Mfrs. No.	Diam. In.	Lgth. in.	Size Holder In.	Price Per Doz.
544	3½	5½	2¼	$8.50

FARIES CEILING LIGHTS

No. 635

Used with receptacle. Diameter 6¼ inches, depth 2 inches. Furnished with two screw holes.

For 3¼-Inch Glass

Mfrs. No.		Price Per 100
635H	Brushed Brass	$36.00
635I	Black	36.00
635J	Unfinished	30.00

For 4-Inch Glass

636H	Brushed Brass	40.00
636I	Black	40.00
636J	Unfinished	34.00

Used with separable sign receptacle. Diameter 5⅝ inches, depth 2¾ inches. Furnished with two screw holes and without receptacle.

No. 8117

For 2¼-Inch Glass

Mfrs. No.		Price Per 100
8117D	Brushed Brass	$50.00
8117E	Unfinished	40.00

For 3¼-Inch Glass

8117F	Brushed Brass	60.00
8117G	Unfinished	50.00

For 4-Inch Glass

8117H	Brushed Brass	70.00
8117J	Unfinished	60.00

No. 8118

Used with separable sign receptacle. Diameter 6 inches, depth 4 inches. Furnished with two screw holes and without receptacle.

For 2¼-Inch Glass

Mfrs. No.		Price Per 100
8118D	Brushed Brass	$63.00
8118E	Unfinished	50.00

For 3¼-Inch Glass

8118F	Brushed Brass	73.00
8118G	Unfinished	60.00

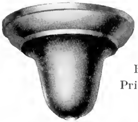
For 4-Inch Glass

8118L	Brushed Brass	83.00
8118H	Unfinished	70.00

For 6-Inch Glass

8118J	Brushed Brass	105.00
8118K	Unfinished	90.00

FARIES CANOPIES



No. 2437B

No. 2437B

5x4 Inches

Brushed Brass, with Ring.
Priee Per 100..............**$42.00**

No. 8113

5 x 2½ Inches

Brushed Brass, without Ring.
Priee Per 100....**$32.00**

No. 8113

No. 2383B

No. 2383B

4½ x 3 Inches

Brushed Brass, with Ring.

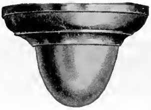
Price Per 100....**$36.00**

No. 1551B

4½ x 3 Inches

Brushed Brass, with Ring.

Price Per 100 **$36.00**



No. 1551B

No. 806B
Extra Heavy Canopy
6 x 4 Inches

Brushed Brass, with Ring.

Price Per 100 **$65.00**

No. 8046S

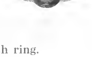
5x1½ Inches

Priee Per 100...................**$36.00**

No. 8046T

6x1½ Inches

Priee Per 100...................**$44.00**



No. 8046 is brushed brass, with ring.

EDSH STEMS AND FIXTURE SUPPORTS

INSULATED FIXTURE SUPPORTS WITHOUT NIPPLES

No. 125-A

No. 125-F

No. 100

Hickey Type

Mfrs. No.	Size In. Blind Coupling	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
125-A	⅜x⅛	50	500	48	**$0.45**
125-B	⅜x¼	50	500	48	**.45**
125-C	⅜x⅜	50	500	48	**.48**
125-D	½x⅛	50	500	48	**.50**
	Solid Type				
125-F	⅜x¼	50	500	50	**.40**
125-G	⅜x⅛	50	500	50	**.40**
125-H	⅜x⅜	50	500	50	**.40**

Swivel Hickey

Bushings furnished ½ to ⅜, ½ to ¼, ½ to ⅛ inch as required.

Mfrs. No.	Size In. Blind Coupling	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
100	⅜	50	500	94	**.45**

Mfrs. No.		Std. Pkg.	Price Each
130	Knu Fibre for Canopy Installation 12 feet to carton.	100	**$0.50**

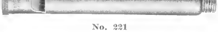
NON-INSULATING TYPE BRASS STEMS

All non-insulated type stems are made as a one pieee stem. They are made of solid brass with a permanent finish. The standard finish is brushed brass, but any speeial finish may be had upon request. They are fully approved and there is a stem to meet all requirements.

No. 215

Chain Hanger Stem, ⅜ Inch Male Thread

Mfrs. No.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
215	25	500	89	**$0.25**
	¼ Inch Male Thread			
216	25	500	89	**.25**
Drop Cord Pendant Hanger, ⅜ Inch Male Thread				
217	25	500	85	**.25**
	¼ Inch Male Thread			
218	25	500	85	**.25**
	⅜ Inch Blind Coupling			
206	25	500	85	**.28**
	Stem Pendant Hanger, ¼x¼ Male Thread Both Ends			
219	25	500	80	**.25**
	⅜x⅜ Male Thread Both Ends			
220	25	500	80	**.25**



No. 221

Chain Hanger Stem With ⅜ Inch Female Blind Coupling and ⅜ Inch Male Thread

Mfrs. No.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
221	25	500	90	**.30**
With ⅜ Inch Female Blind Coupling and ¼ Inch Male Thread				
222	25	500	90	**.30**

FARIES FLEXIBLE ARM PORTABLES

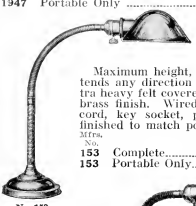
For the Office, Home or Factory

Approved portables furnished with approved insulator.

No. 1947

With 9-inch flexible tube. Extends 20 inches overall. Brushed brass finish. Wired with 9 ft. silk cord, key socket, plug and No. 27 shade finished to match portable.

Mfrs. No.		Std. Pkg.	Price Each
1947	Complete	12	**$4.50**
1947	Portable Only	12	**3.00**



No. 153

Maximum height, 26 inches. Extends any direction 16 inches. Extra heavy felt covered base. Brushed brass finish. Wired with 9 ft. silk cord, key socket, plug and shade finished to match portable.

Mfrs. No.		Std. Pkg.	Price Each
153	Complete	12	**$5.50**
153	Portable Only	12	**3.00**

No. 3641

Heavy cast fancy base with 12 inch flexible arm. Maximum height, 24 in. Extends 18 in.

Wired with 9 ft. silk cord, key socket, plug and No. 27 shade finished to match portable.

Mfrs. No.		Std. Pkg.	Price Each
3641	Statuary Bronze	12	**$4.50**
3641	Verde Antique	12	**4.50**

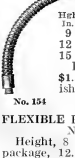
FLEXIBLE ARM

No. 154

¼-inch iron male thread each end.

Hght. In.	Price Each	Hght. In.	Price Each
9	**$1.10**	18	**$1.90**
12	**1.30**	24	**2.55**
15	**1.55**	....	.....

Longer lengths, per foot **$1.30.** Brushed Brass finish.



No. 154

No. 155

FLEXIBLE PORTABLE BASE

No. 155

Height, 8 inches. Standard package, 12. Brushed Brass. Price Each **$1.70**

Prices do not include shades, lamps, shade holders, sockets, or wiring, unless otherwise specified.

FARIES ADJUSTABLE PORTABLES

For Home, Office or Factory

Approved portables furnished with approved insulator.

No. 1012

Adjustable portable with extra heavy felt covered base, large tubing. Maximum height, 25 inches. Extends 24 inches. With one-piece adjustable hinge joint. Wired with 9 ft. silk cord, key socket and No. 27 shade.

No. 1012 Complete.....**$5.00**
No. 1012 Portable Only..... **2.50**

No. 3181

No. 3268

Adjustable to any position. For dresser or writing desk. Maximum height, 16½ inches, base 5½ inches diameter.

Wired with 6 ft. silk cord, key socket, plug and shade finished to match portable.

Brushed Brass **$5.50**
Statuary Bronze..... **6.10**

No. 63

No. 63 height, 24 inches. Arm, 13 inches. Wired with 9 ft. silk cord, key socket, plug and No. 26 cone shade. Brushed Brass finish. Standard package, 6. Price Each **$6.25**

No. 1792

No. 1792 adjustable portable lamp for home or office use. Has large tubing. Maximum height, 31 inches. Extends 34 inches over all.

Brushed Brass finish. Standard package, 6.

Wired with 9 ft. silk cord, key sockets and No. 27 shades finished to match. Each Complete **$9.50** Portable Only **$5.25**

Prices do not include shades, lamps, shade holders, sockets or wiring, unless otherwise specified.

ESROBERT PORTABLE LAMPS

No. 149

Felted base, 5½ inches in diameter. 9-inch brass phlexarm, 6-inch rigid stem, ⅝-inch in diameter. Maximum height, 26 inches. Weight, packed in carton, 6½ lbs.

Finish: Brushed brass, Statuary Bronze.

Furnished with key socket, 10 ft. new code parallel mercerized cord and 2-piece attachment plug.

Mfrs. No.	Price Each
149	$4.50

No. 309

Cast iron base 8¼ inches long, 5⅜ inches wide, felted on bottom. Special 13-inch brass phlexarm. Maximum height, 24½ inches. Weight, packed in carton, 6 lbs.

Finish: Verdgold, Bronzegold.

Furnished with key socket, 10 ft. new code parallel mercerized cord, and 2-piece attachment plug.

Mfrs. No.	Price Each
309	$5.00

No. 1519

Base 6¼ inches in diameter, felted on bottom. Double jointed arm 13½ inches long, provided with special corrugated joint. Maximum height, 24½ inches. Weight, packed in carton, 6½ lbs.

Finish: Brushed Brass and Statuary Bronze.

Furnished with key socket, 10 ft. new code parallel mercerized cord and 2-piece attachment plug.

Mfrs. No.	Price Each
1519	$4.50

ESROBERT PORTABLE LAMPS

No. 138

Felted base, 5½ inches in diameter. Special 10-inch brass phlexarm. Maximum height, 21 inches. Weight, packed in carton, 6½ lbs.

Finish: Brushed Brass, Statuary Bronze.

Furnished with key socket, 10 ft. new code parallel mercerized cord and 2-piece attachment plug.

Mfrs. No.	Price Each
138	$4.00

No. 310

Cast iron base, 8 inches long and 5½ inches wide, felted on bottom. 13-inch brass phlexarm. Maximum height, 24½ inches. Weight, packed in carton, 5¼ lbs. Finish: Antique Bronze, Verde Green.

Furnished with key socket, 10 ft. new code parallel mercerized cord and 2-piece attachment plug.

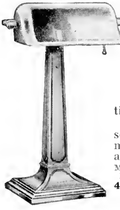
Mfrs. No.	Price Each
310	$4.00

No. 308

Cast iron base 8¼x5¾ inches, felted on bottom. 12-inch brass phlexarm. Green glass shade. Maximum height, 24½ inches. Weight, packed in carton, 6 lbs. Finish: Verdgold, Bronzegold. Furnished with 10 ft. new code parallel mercerized cord and 2-piece attachment plug.

Mfrs. No.	Price Each
308	$5.00

THE "GREENALITE" LINE
(An Esrobert Product)



NO. 468

Solid cast metal base, 7 inches square. Height to bracket, 13½ inches. Oblong green glass shade, 8⅝x5¼x3¼ inches.

Finish: Flemish Brass, Antique Bronze, Verde Green.

Furnished with pull chain socket, 10 ft. new code parallel mercerized cord and 2-piece attachment plug.

Mfrs. No	Hght. In.	Wt. Lbs	Price Each
468	18	13	**$12.00**

NO. 1469

Base 7 inches in diameter, weight 6 lbs. Height of column, base to bracket, 12½ inches. Oblong green glass shade 8⅝x5¼x3¼ inches.

Finish: Brushed Brass, Statuary Bronze, Verde Green.

Furnished with pull chain socket, 10 ft. new code parallel mercerized cord and 2-piece attachment plug.

Mfrs. No.	Hght. In.	Wt. Lbs.	Price Each
1469	17	8½	**$9.50**

NO. 458

Solid cast metal base, 7 inches square. Has jointed arm and shade bracket, 10 inches long, with special friction joint. Oblong green glass shade 8⅝x5¼x3¼ inches. Finish: Flemish Brass, Antique Bronze, Verde Green. Furnished with pull chain socket, 10 ft. new code parallel mercerized cord and 2-piece attachment plug.

Mfrs. No	Hght. In.	Wt. Lbs.	Price Each
458	16	10½	**$12.00**

NO. 1459

Base 7 inches in diameter; weight 6 pounds. Jointed arm and shade bracket, 12 inches long. Oblong green glass shade 8⅝x5¼x3¼ inches.

Finish: Same as No. 1469.

Furnished with pull chain socket, 10 ft. new code parallel mercerized cord and 2-piece attachment plug.

Mfrs. No.	Hght. In.	Wt. Lbs.	Price Each
1459	16	8½	**$9.50**

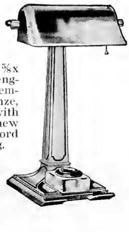
THE "GREENALITE" LINE
(An Esrobert Product)

NO. 478

Solid cast metal base, 7 inchcs square. Height to bracket, 13½ inches. Two oblong green glass shades, 8⅝x5¼x3¼ inches.

Finish: Flemish Brass, Antique Bronze, Verde Green. Furnished with 2 pull chain sockets, 10 ft. new code parallel mercerized cord and 2-piece attachment plug.

Mfrs. No.	Hght. In.	Wt. Lbs.	Price Each
478	18	15	**$20.00**



NOS 467-466

Solid cast metal base, 7 inches sqquare. Height to bracket, 13½ inches. Oblong green glass shade, 8⅝x5¼x3¼ inches. With Sengbusch inkwell. Finish: Flemish Brass, Antique Bronze, Verde Green. Furnished with pull chain socket, 10 ft. new code parallel mercerized cord and 2-piece attachment plug.

Mfrs. No.	Hght. In.	Wt. Lbs.	Price Each
467	18	13	**$17.00**
466	18	13	**14.00**

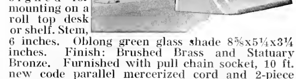
No. 466. Same as above except with standard inkwell.

NO. 433

Crowfoot fastened by 3 wood screws, and covered by canopy. Stem, 6 inches. Oblong green glass shade 8⅝x5¼x3¼ inches. Finish: Brushed Brass, Statuary Bronze. Furnished with pull chain socket, 10 ft. new code parallel mercerized cord and 2-piece attachment plug.

Mfrs. No.	Hght. In.	Wt. Lbs.	Price Each
433	10	3	**$10.00**

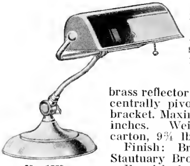
NO. 436



Bracket designed for mounting on a roll top desk or shelf. Stem, 6 inches. Oblong green glass shade 8⅝x5¼x3¼ inches. Finish: Brushed Brass and Statuary Bronze. Furnished with pull chain socket, 10 ft. new code parallel mercerized cord and 2-piece attachment plug.

Mfrs. No.	Lgth. In.	Wt. Lbs.	Price Each
436	10	3	**$10.00**

ESROBERT PORTABLE LAMPS



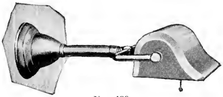
No. 1559

Base 7¼ inches in diameter, felted on bottom. Jointed arm and shade bracket, 11 inches long with heavy cast brass joint. Oblong brass reflector 8¾ x 3⅞ inches, centrally pivoted on a forked bracket. Maximum height, 15¼ inches. Weight, packed in carton, 9¾ lbs.

Finish: Brushed Brass and Stautuary Bronze.

Furnished with pull chain socket, 10 ft. new code parallel mercerized cord and 2-piece attachment plug.

Mfrs. No.	Price Each
1559	$8.50



No. 430

Crowfoot fastened by three wood screws, and covered by canopy. Stem, 6 inches. Oblong green glass shades 8⅝ x 5¼ x 3¼ inches.

Finish: Brushed Brass, Statuary Bronze.

Furnished with pull chain socket, 10 ft. new code parallel mercerized cord and 2-piece attachment plug.

Mfrs. No.	Extends In.	Wt. Lbs.	Price Each
430	15	3	$10.00

No. 431

Similar to No. 430 wall fixture. Stem, 3 inches. Oblong green glass shade 8⅝ x 5¼ x 3¼ inches.

Finish: Brushed Brass, Statuary Bronze.

Furnished with pull chain socket, 10 ft. new code parallel mercerized cord and 2-piece attachment plug.

Mfrs. No.	Extends In.	Wt. Lbs.	Price Each
431	12	3	$8.00

Base and stem cast metal, 5½ inches in diameter, 6¾ inches high, felted on bottom. Maximum height, 16¼ inches. Weight, packed in carton, 3¼ lbs.

Finish: Old Ivory, Antique Bronze, Green and Gold.

Furnished with push socket, 10 ft. new code parallel mercerized cord and 2-piece attachment plug.

Mfrs. No.	Price Each
500	$4.00

No. 500

ESROBERT PORTABLE LAMPS

No. 554

Base and stem of cast metal, 5½ inches in diameter, 6¾ inches high, felted on bottom. Silk shade 7 inches diameter and 6 inches high. Maximum height, 14 inches. Weight, packed in carton, 3¾ lbs.

Finish: Old Ivory base. Shades: Rose, Blue and Cerise, Gold and Cerise.

Furnished with push socket, 10 ft. new code parallel silk cord and 2-piece attachment plug.

Mfrs. No	Price Each
554	$4.50

Cast metal base, 5½ inches in diameter, 6¾ inches high, felted on bottom. Metal frame shade with silk lining, 6 inches high, 6¾ inches wide. Height, 14½ inches. Weight, 4 lbs.

Finish: Old Ivory Base. Shades: Rose, Gold and Cerise, Blue and Cerise.

Furnished with push socket, 10 ft. new code parallel silk cord and 2-piece attachment plug.

Mfrs No.	Price Each
563	$6.50

No. 563

No. 564

Cast metal base, 5½ inches in diameter, 6¾ inches high, felted on bottom. Oval metal frame shade with silk lining. Height, 14½ inches. Weight, 4 lbs.

Finish: Old Ivory base. Shades—Rose, Blue and Cerise, Gold and Cerise.

Furnished with push socket, 10 ft. new code parallel silk cord and 2-piece attachment plug.

Mfrs. No.	Price Each
564	$6.50

Cast metal base, 4 inches in diameter, 6 inches high. Metal shade with silk lining, 5½ inches in diameter x 5½ inches high.

Finish: Base, Old Ivory; Shades—Rose, Blue and Cerise, Gold and Cerise.

Furnished with 10 ft. new code parallel silk cord, push socket and 2-piece plug.

Mfrs. No	Price Each
574	$5.00

No. 574

ESROBERT PORTABLE LAMPS

No. 551

Base is Cast Metal, 4 inches in diameter, 5⅜ inches high and felted on the bottom.

Shade is silk, 6¼ inches in diameter and 5 inches high.

Wired with a two-piece association attachment plug, association push socket and 6 feet of parallel cord.

Height is 11½ inches.

Finish of base is Old Ivory; Shades are Rose, Blue and Cerise, and Gold and Cerise.

Packed in cartons containing two lamps of one color.

Price Each $2.50

No. 575

Base is Cast Metal, 4⅛ inches in diameter, 5¾ inches high and felted on the bottom.

Shade is made of metal frame with silk lining, 4⅞ inches high and 5 inches in diameter.

Wired with a two-piece association attachment plug, association push socket and 6 feet of parallel cord.

Height is 11½ inches.

Finish of base is Old Ivory; Shades are Rose, Blue and Cerise, and Gold and Cerise.

Packed in cartons containing two lamps of one color.

Price Each $2.50

PORTABLE LAMPS

No. 3052

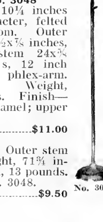
Cast iron base, 10 inches in diameter, felted on bottom. Outer stem 36½x⅞ inches, inner stem 24x5 inches. Ornamental bridge arm.

Finish—Stand, black and gold; shades—rose, blue and cerise, gold and cerise.

Mfrs. No	Description	Price Each
3052	Complete Lamp	**$16.00**
3051	Stand Only	**10.00**
901	Shade Only	**6.00**

Ash trays can be furnished at a slight additional price.

HOSPITAL LAMPS


No. 3048

No. 3048

Base 10¼ inches in diameter, felted on bottom. Outer stem 36½x⅞ inches, inner stem 24x⅝ inches, 12 inch brass phlex-arm. Maximum height, 85 inches. Weight, packed in carton, 17 pounds. Finish—Base and outer stem, white enamel; upper parts, nickel plated.

Price Each $11.00

No. 2043

Base 8 inches in diameter. Outer stem 30x¾ inches. Maximum height, 71¾ inches. Weight, packed in carton, 13 pounds. Other dimensions same as No. 3048.

Price Each $9.50

ESROBERT PORTABLE LAMPS

No. 2042

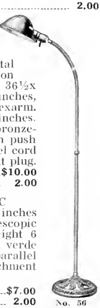
NO. 2042—TELESCOPIC

8 inch base, felted on bottom. Outer stem 30x¾, inner stem 24x⅝ inches, 12 inch brass phlexarm. Maximum height, 71¾ inches. Finish — Brushed brass, statuary bronze. Furnished with push socket, 10 foot cord and 2 piece attachment plug.

Price Each $8.50
Ash Tray, Extra 2.00

NO. 3042

TELESCOPIC


No. 56

10¼ inch ornamental cast iron base, felted on bottom. Outer stem 36½x7, inner stem 24x⅝ inches, 12 inch brass phlexarm. Maximum height, 79 inches. Finish— Verdgold, bronzegold. Furnished with push socket, 10 foot parallel cord and 2 piece attachment plug.

Price Each $10.00
Ash Tray, Extra 2.00

NO. 56—NON-TELESCOPIC

Ornamental cast iron base, 8 inches in diameter. Two piece non-telescopic stem, 32 inches in length. Weight 6 pounds. Finish—Antique bronze, verde green. Furnished with 10 foot parallel cord, socket and 2 piece attachment plug.

Price Each $7.00
Ash Tray, Extra 2.00

Q-RAY

(Cure-Ray)

No. 5030

A therapeutic lamp designed to relieve pain and congestion by stimulating the circulation through the concentrated application of radiant light and heat. Aluminum shade, 9 inches diameter. Incandescent bulb, 260-watt carbon stereopticon.

Weight, packed in carton, 3 lbs. Finish: polished aluminum inside, black outside. Furnished with socket, 10 feet cord and 2-piece plug.

Price Each $8.50

HEATOLITE

No. 5010

Shade is Brass, 7¼ inches in diameter.

Wired with Special Angle Socket, 10 feet of new code parallel mercerized cord, and two-piece association attachment plug.

Bulb is a 260-Watt Carbon Stereopticon.

Finish is green outside, frosted aluminum inside.

Mfrs No	Wt Lb. Each	Price Each
5010	3	**$6.50**
5012	3	**7.50**

Finish of No. 5012 is Nickel-Plated both inside and outside.

WESTINGHOUSE MAZDA LAMPS

GENERAL LIGHTING SERVICE

S-17 Bulb

110, 115 and 120 Volts
Medium Screw Base
Mazda B Lamps

P-19 Bulb

Watts	Approx. Lumens	Bulb	Consignment Classification	Pkg. Qty.	Price Each Clear
10	82	S-17	III	130	**$0.27**
15	130	S-17	I	120	**.27**
25	240	S-17	I	120	**.27**
40	400	S-19	I	120	**.27**
50	520	S-19	I	120	**.27**
60	620	S-21	I	120	**.32**

Mazda B Mill Type Lamps

Watts	Approx. Lumens	Bulb	Consignment Classification	Pkg. Qty.	Price Each Clear
25	220	P-19	II	120	**.30**
50	440	P-19	II	120	**.30**

PS-25 Bulb

110, 115 and 120 Volts
Medium Screw Base
Mazda C Lamps

Watts	Approx. Lumens	Bulb	Cons. Class.	Pkg. Qty.	Price Each—Clear	Price Each—Bowl Enameled
50	500	PS-20	II	60	**$0.40**	.....
75	900	PS-22	I	60	**.45**	.....
100	1300	PS-25	I	24	**.55**	**$0.60‡**
150	2100	PS-25	II	24	**.70**	**.75**
200	3100	PS-30	II	24	**.95**	**1.00**
300	4900	PS-35	II	24	**1.50**	**1.60**
†500	9200	PS-40	II	12	**2.25**	**2.40**
†750	14500	PS-52	III	8	**3.75**	**3.95***
†1000	20000	PS-52	III	8	**4.00**	**4.25**

†If intended for use in other than base up position orders should so state.

‡Consignment classification II.

*Consignment classification IV.

The 50 to 200 watt lamp inclusive are fitted with medium screw bases; the others with mogul screw bases.

WESTINGHOUSE MAZDA LAMPS

GENERAL LIGHTING SERVICE

110, 115 and 120 Volts
Medium Screw Base

S-17 Bulb

P-19 Bulb

PS-20 Bulb

All Frosted Mazda B Lamps

Watts	Bulb	Pkg. Qty.	Consignment Classification	Price Each All Frosted
15	S-17 Frosted	120	III	**$0.32**
25	S-17 Frosted	120	II	**.32**
40	S-19 Frosted	120	II	**.32**
25	P-19 Frosted	120	II	**.35**

White Mazda C Lamps

50	PS-20 White	60	I	**.40**
75	PS-22 White	60	II	**.50**
100	PS-25 White	24	II	**.60**

G-18½ Bulb

Mazda B Lamps
110, 115 and 120 Volts

Watts	Bulb	Pkg. Qty.	Consignment Classification	Price Each All Frosted
15	G-18½ Frosted	120	II	**$0.40**
25	G-18½ Frosted	120	I	**.40**
25	G-25 Frosted	60	II	**.50**
40	G-25 Frosted	60	II	**.50**

G-Bulb

D-Bulb

B-Bulb

T-Bulb

DECORATIVE LAMPS

110, 115 and 120 Volts
All Equipped with Candelabra Screw Base
All Frosted Mazda B Lamps

Watts	Bulb	Pkg. Qty.	Consignment Classification	Price Each
15	B- 9½	60	IV	**$0.60**
15	G-16½	60	III	**.60**
15	D-10	60	III	**.60**
15	T- 8	60	IV	**.60**

Clear Mazda B Lamps

15	B- 9½	60	IV	**.60**
15	G-16½	60	IV	**.60**
15	D-10	60	IV	**.60**
15	T- 8	60	IV	**.60**

WESTINGHOUSE MAZDA LAMPS

SPECIAL LIGHTING SERVICE
MINE LIGHTING
275 Volts

Medium Screw Base

Mazda B Lamps

P-Bulb

Watts	Bulb	Std.Pkg. Qty.	Cons. Class.	Price Each
50	P-19	120	II Spl.	**$0.47**

SPECIAL LIGHTING SERVICE

TRAIN LIGHTING
60-65 Volts
Medium Screw Base

S-Bulb

G-Bulb

PS-Bulb

Mazda B Lamps

Watts	Bulb	Std.Pkg. Qty.	Cons. Class.	Price Each
15	S-17	120	III Spl.	**$0.27**
25	S-17	120	III Spl.	**.27**
15	G-18½	120	III Spl.	**.35**
25	G-18½	120	III Spl.	**.35**

Mazda C Lamps

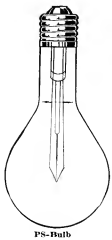
50	PS-20	60	III Spl.	**.40**
75	PS-22	60	III Spl.	**.50**
100	PS-25	24	III Spl.	**.65**

Orders should specify the individual voltage and be marked "Train Lighting."

WESTINGHOUSE MAZDA LAMPS

SPECIAL LIGHTING SERVICE
STREET SERIES

S-Bulb



PS-Bulb

These lamps are fitted with Mogul Screw base unless otherwise noted.

The nominal candlepower of these lamps is one-tenth their lumen rating.

4, 5.5 and 7.5 Amperes

Mazda C Lamps

Lumens	Bulb	Average Volts— 4.0 Amp.	5.5 Amp.	7.5 Amp.	Std. Pkg. Qty.	Cons. Class.	Price Each
600	S-24½	10.6	7.8	6.3	50	II Spl.	**$0.85**
800	S-24½	13.9	10.1	7.5	50	II Spl.	**.90**
1000	S-24½	16.5	12.5	8.8	50	II Spl.	**.90**
2500	PS-35	41.4	29.0	20.6	24	IV	**1.80**
4000	PS-35	66.7	45.1	31.2	24	IV	**2.60**
6000	PS-40	.....	.....	45.2	12	IV	**3.25**

6.6 Amperes

Mogul Screw Base

Mazda C Lamps

Lumens	Average Volts	Bulb	Pkg. Qty.	Cons. Class.	Price Each Clear
600	6.8	S-24½	60	II Spl.	**$0.85**
800	8.3	S-24½	60	II Spl.	**.90**
1000	9.9	S-24½	60	II Spl.	**.90**
2500	23.1	PS-25	24	II Spl.	**1.80**
4000	37.0	PS-35	24	II Spl.	**2.60**
6000	54.7	PS-40	12	II Spl.	**3.25**

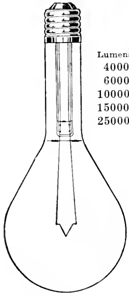
The nominal candle power of these lamps is one-tenth of their lumen rating.

WESTINGHOUSE MAZDA LAMPS

SPECIAL LIGHTING SERVICE
STREET SERIES

15 and 20 Amperes

Mogul Screw Base



PS-40 Bulb

Mazda C Lamps

Lumens	Average Volts	Bulb	Pkg. Qty.	Cons. Class.	Price Each Clear
4000	14.8	PS-40	12	II Spl.	**$2.60**
6000	15.5	PS-40	12	II Spl.	**3.25**
10000	25.9	PS-40	12	II Spl.	**4.00**
15000	37.5	PS-40	12	IV	**5.00**
25000	60.6	PS-52	8	IV	**7.50**

The nominal candle power of these lamps is one-tenth of their lumen rating.

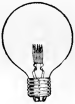
If these lamps are for use in other than base up position, orders should so state.

STREET RAILWAY

105, 110, 115, 120, 125 and 130 Volts

S-19 Bulb

Medium Screw Base



G-18½ Bulb

Watts	Bulb	Light Center Lgth. In.	Pkg. Qty.	Cons. Class.	Price Each Clear
23	S-17	....	120	III Spl.	**$0.27**
36	S-19	....	120	III Spl.	**.27**
56	S-21	....	120	III Spl.	**.32**
94	S-24½	....	50	III Spl.	**.85**
HEADLIGHT					
23	G-18½	$2\frac{3}{16}$	120	III Spl.	**.75**
36	G-18½	$2\frac{3}{16}$	120	III Spl.	**.75**
46	G-25	$2\frac{1}{16}$	60	IV	**.90**
56	G-25	$2\frac{1}{16}$	60	IV	**.90**
94	G-25	$2\frac{1}{16}$	60	III Spl.	**1.15**

Five lamps used in series on 520, 550, 575, 600, 625 and 650 volts.

Only the above lamps, selected for amperes and for one-fifth the voltage on which they are labeled for use in series, will be supplied at the prices given.

WESTINGHOUSE MAZDA LAMPS

SPECIAL LIGHTING SERVICE
COUNTRY HOME PLANT

28-32 Volts

Medium Screw Base

These lamps are generally used on the circuits of country home lighting outfits having 16 cells of acid (lead storage) battery or 24 cells of alkaline battery in connection with a generator. The capacity of country home lighting outfits is usually expressed in the number of 20 watt lamps which it will light without overloading batteries and generator. Thus a 50 lamp country home lighting outfit will light fifty 20 watt lamps or twenty-five 40 watt lamps, etc.

The Clear lamps listed below should be used with proper reflectors to protect the eyes from the extremely bright filament.

If lamps are for use in other than base up position, orders should so state.

These lamps are supplied for only one voltage and are adapted for use on circuits the voltage of which varies between 28 and 32.

Orders should specify "28-32 volts for country home lighting service."

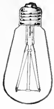
White Bulb PS-20

PS-Bulb

PS-22 Bulb

Mazda C Lamps

Watts	Bulb	Pkg. Qty.	Cons. Class.	Price Each Clear
15	PS-16 White	120	IV	**$0.40**
25	PS-16 White	120	II Spl.	**.40**
50	PS-20 White	60	I Spl.	**.40**
50	PS-20 Clear	60	I Spl.	**.40**
75	PS-22 Clear	60	II Spl.	**.50**
100	PS-25 Clear	24	II Spl.	**.65**



S-17 Bulb

G-18½ Bulb

Mazda B Lamps

Watts	Bulb	Pkg. Qty.	Cons. Class.	Price Each Clear
10	S-17 Clear	120	I Spl.	**$0.27**
15	S-17 Clear	120	II Spl.	**.27**
25	S-17 Clear	120	I Spl.	**.27**
25	G-18½ Frosted	120	II Spl.	**.40**
40	S-19 Clear	120	I Spl.	**.27**

The price on this schedule applies only to lamps which are designed for an average voltage, as determined by the Manufacturer, suitable for operation on 28-32 volt circuits, and does not apply to lamps ordered for individual voltages within this range.

WESTINGHOUSE MAZDA LAMPS

SPECIAL LIGHTING SERVICE

220, 230, 240 and 250 Volts

Medium Screw Bases

S-19 Bulb **P-19 Bulb**

Mazda B Lamps

Watts	Approx. Lumens	Bulb	Pkg. Qty.	Cons. Class.	Price Each Clear
25	195	S-19	120	I Spl.	**$0.32**

Mazda B Mill Type Lamp

50	430	P-19	120	I Spl.	**.32**

Mazda C Lamps

220, 230, 240 and 250 Volts

PS-Bulb

Lamps of 220, 230, 240 and 250 volts are higher in price and less efficient than 110, 115 and 120 volt lamps of same wattage and should not be used where it is possible to change the service from 220, 230, 240 and 250 to 110, 115 and 120 volts. As lamps for 220, 230, 240 and 250 volts cover approximately 90 per cent of the demand, lamps for other voltages between 200 and 260 are not regularly carried in stock in all places but may be obtained at the same prices. The 100 and 200 watt lamps are fitted with medium screw bases, the others with mogul screw bases.

If lamps of 300 watts and greater are for use in other than tip down position, orders should so state.

Watts	Approx. Lumens	Bulb	Pkg. Qty.	Cons. Class.	Price Each Bowl Clear	Price Each Bowl Enameled
100	1050	PS-25	24	I Spl.	**$0.70**	**$0.75‡**
200	2600	PS-30	24	II Spl.	**1.15**	**1.25**
300	4300	PS-35	24	II Spl.	**1.80**	**1.90**
*500	8000	PS-40	12	II Spl.	**2.55**	**2.70**
*750	12500	PS-52	8	IV	**4.35**	**4.60**
*1000	18000	PS-52	8	IV	**5.00**	**5.30**

*If this lamp is for use in other than base up position, orders should state.

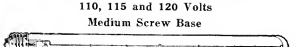
‡Consignment Classification, II Spl.

WESTINGHOUSE MAZDA LAMPS

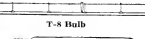
GENERAL LIGHTING SERVICE

110, 115 and 120 Volts

Medium Screw Base



T-8 Bulb



T-10 Bulb

Mazda B Lamps

Watts	Bulb	Pkg. Qty.	Cons. Class.	Price Each Clear
25	T-10	60	II Spl.	**$0.45**
40	T-8	24	IV	**1.15**

Mazda B Lamps

SPECIAL LIGHTING SERVICE

SIGN LIGHTING

11, 11½ and 12, 55 and 60, and 110, 115 and 120 Volts

Medium Screw Base

S-14 Bulb
55 and 60 Volts

S-14 Bulb
11, 11½ and 12 Volts

P-19 Blue Bulb

Mazda B Lamps

11, 11½ and 12 Volt Lamps

Watts	Bulb	Pkg. Qty.	Cons. Class.	Price Each Clear
5	S-14	200	III Spl.	**$0.27**
		55 and 60 Volt Lamps		
5	S-14	200	III Spl.	**.27**
		110, 115 and 120 Volt Lamps		
10	S-14	200	I Spl.	**.27**
25	*P-19	120	I Spl.	**.45**
50	*P-19	120	II Spl.	**.45**

*The bulb is a special light blue glass to give a whiter light than the ordinary clear bulb lamp.

11, 11½ and 12 Volt Lamps

On alternating current these lamps are generally operated on a transformer circuit where the voltage is reduced from 110, 115 or 120 volts. On direct current these lamps may be operated ten in series on the 110, 115 or 120 volt circuit.

55 and 60 Volt Lamps

These lamps are usually burned two in series or in series multiple on 110, 115 or 120 volts.

WESTINGHOUSE MAZDA LAMPS

SPECIAL LIGHTING SERVICE
TRAIN LIGHTING

30 to 34 Volts

Orders should specify the individual voltage and be marked "Train Lighting" to distinguish from country home lighting lamps. Medium Screw Base unless otherwise noted.

S-Bulb

*S-Bulb

G-Bulb

Mazda B Lamps

Straight Side Bulbs

Watts	Bulb	Pkg. Qty.	Cons. Class.	Price Each Clear
15	S-17	120	III Spl.	**$0.27**
*15	S-17	120	III Spl.	**.27**
20	S-17	120	IV	**.27**
25	S-17	120	III Spl.	**.27**

Round Bulbs

15	G-18½	120	III Spl.	**.35**
25	G-18½	120	III Spl.	**.35**

*For locomotive cab lighting service, 33 volts only. Orders should specify "cab lighting service."

PS-22 Bulb

PS-16 Bulb
All Frosted

PS-20 Bulb
Bowl Frosted

Mazda C Lamps

Watts	Bulb	Pkg. Qty.	Cons. Class.	Price Each Clear
50	PS-20 Clear	60	III Spl.	**$0.40**
75	PS-22 Clear	60	III Spl.	**.50**
100	PS-25 Clear	24	III Spl.	**.65**
15	†PS-16 Frosted	120	IV	**.40**
25	†PS-16 Frosted	120	III Spl.	**.40**
50	PS-20 Bowl Frosted	60	III Spl.	**.45**

†May be obtained frosted or clear at the same price.

WESTINGHOUSE MAZDA LAMPS

SPECIAL LIGHTING SERVICE
LOCOMOTIVE HEADLIGHT

30 to 34 Volts—Medium Screw Base

These lamps can be burned in any position except within 45 degrees of vertically base up.

G-Bulb

Mazda C Lamps

Watts	Bulb	Light Center Lgth.in.	Std. Pkg. Qty.	Cons. Class.	Price Each Clear
*100	G-25	3	60	III Spl.	**$1.10**
250	G-30	3	24	III Spl.	**1.85**

*Maximum overall length, 4¾ inches.

GENERAL LIGHTING SERVICE

110, 115 and 120 Volts

PS-Bulb

Mazda C Daylight Lamps have bulbs made of special blue glass to produce light approximating average daylight quality.

Orders for these lamps must specify "Daylight."

*If this lamp is for use in other than base up position, orders should so state.

The 75, 100, 150 and 200 Watt Lamps are fitted with medium screw bases

The 300 and 500 Watt Lamps are fitted with Mogul screw bases

Watts	Bulb	Pkg. Qty.	Cons. Class.	Price Each Clear
50	PS-20	60	III	**$0.60**
75	PS-22	60	I	**.65**
100	PS-25	24	II	**.85**
150	PS-25	24	II	**1.10**
200	PS-30	24	II	**1.45**
300	PS-35	24	II	**2.10**
*500	PS-40	12	IV	**3.10**

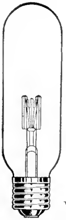
As lamps for 110, 115 and 120 volts cover approximately 90 per cent of the demand, lamps for other voltages between 100 and 130 are not regularly carried in stock in all places but may be obtained at the same prices.

WESTINGHOUSE MAZDA LAMPS

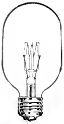
SPECIAL LIGHTING SERVICE

PROJECTION

110-115-120 Volts



T-20 Bulb
1000 Watts



T-20 Bulb
*400 Watts

*This lamp may be obtained with medium screw skirted base at the same price, having a light center length of 3⅞ inches and a maximum overall length of 6 1/16 inches.

The 250 and 400 watt lamps are fitted with a medium screw base and the 1000 watt lamp with a mogul screw base.

These lamps must burn base down.

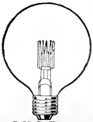
Mazda C Lamps

Watts	Bulb	Light Center Lgth.In.	Std. Pkg. Qty.	Cons. Class.	Price Each Clear
250	T-14	3	24	II Spl.	**$1.75**
*400	T-20	3	6	II Spl.	**3.00**
1000	T-20	4¾	6	II Spl.	**7.00**

These round bulb lamps can be burned in any position except within 45 degrees of vertically, base up.

Orders for these round bulb lamps must specify for projection purposes.

These lamps are fitted with medium screw bases.



G-25 Bulb

Watts	Bulb	Light Center Lgth.In.	Std. Pkg. Qty.	Cons. Class.	Price Each Clear
100	G-25	3	60	II Spl.	**$1.10**
‡250	G-30	3	24	III Spl.	**1.85**
†400	G-30	3	24	III Spl.	**3.25**

†Medium screw skirted base can be supplied at the same price with a light center length of 3⅞ inches and a maximum overall length of 6 1/16 inches.

‡Mogul screw base can be supplied at same price with a light center length of 3⅜ inches and a maximum overall length of 5 9/16 inches.

28-32 Volts

T-16 Bulb
300 Watts

These lamps are for Motion Picture Service and should be burned vertically, base down. They should never be lighted when in any other position.

This lamp is fitted with medium screw base.

Mazda C Lamps

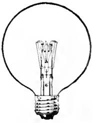
Watts	Bulb	Light Center Lgth. In.	Std. Pkg. Qty.	Cons. Class.	Price Each Clear
300	T-16	3	12	IV	**$2.75**

The price on this schedule applies only to lamps which are designed for an average voltage, as determined by the Manufacturer, suitable for operation on 28-32 volt circuits, and does not apply to lamps ordered for individual voltages within this range.

WESTINGHOUSE MAZDA LAMPS

SPECIAL LIGHTING SERVICE
FLOODLIGHTING

110, 115 and 120 Volts



G-30 Bulb

These lamps can be burned in any position except within 45 degrees of vertically base up.

Orders for these lamps should specifically state for "flood lighting service."

The 250 watt lamp is fitted with medium screw base and the 500 watt lamp with mogul screw base.

Mazda C Lamps

Watts	Bulb	Light Center Lgth.In.	Std. Pkg. Qty.	Cons. Class.	Price Each Clear
*250	G-30	3	24	II Spl.	**$1.85**
500	G-40	4¼	12	II Spl.	**3.25**

*The 250 watt lamp may be supplied without extra charge fitted with unskirted mogul screw base having a light center length of 3⅜ inches and a maximum overall length of 5 9/16 inches.

SPECIAL LIGHTING SERVICE

110, 115 and 120 Volts
Medium Screw Base

Flame Tinted

Colored Lamps

These lamps are colored with a weatherproof coating.

FLAME TINTED MAZDA B LAMPS

Flame tinted lamps give a soft tinted lighting effect often desirable in homes, hotels, theaters, etc. The decorative types listed below will supply the general demand.

Watts	Bulb	Std.Pkg. Qty.	Cons. Class.	Price Each
25	G-18½	120	II	**$0.50**
25	G-25	60	III	**.60**
40	G-25	60	III	**.60**

RED, BLUE, GREEN AND YELLOW

Mazda B Lamps

Substantially all of the color effects required for decorative and display lighting in theaters, restaurants, signs, etc., can be produced by these four colors and the three lamps listed below. In the interest of standardization it is recommended that whenever possible colored lighting be produced by the colors and lamps herein listed.

Watts	Bulb	Std.Pkg. Qty.	Cons. Class.	Price Each
10	S-14	200	III	**$0.37**
25	S-17	120	III	**.37**
40	S-19	120	III	**.37**

WESTINGHOUSE MAZDA LAMPS

NOTICE TO AGENTS AND PURCHASERS

Lamps in the Standard Price Schedules are separated into two main divisions—the first comprising those for general lighting service—and the second those for special lighting services, such as sign, projection, etc. The relative demand for lamps in each of these divisions is indicated by the classification symbols (I, I-Spl., II, II-Spl., etc.) appearing on each page under the heading "Consignment Classification." This grouping will serve as a guide to agents in determining the stocks of lamps necessary to enable them to properly supply the lamp demand. Lamps not carried in the manufacturer's consigned stock in the custody of the agent, and for which there is only an occasional demand, may be obtained promptly from the serving agent or manufacturer.

GUIDE TO CONSIGNMENT OF MAZDA LAMPS

For use by Agents when requesting stocks required for proper service to Agents and Purchasers they serve.

General Lighting Service
110, 115 and 120 Volts

Group I

Lamps maintained in the consigned stock for retail agents selling lamps for general lighting service, will be supplied from the following:

Watt		Watt	
15 S-17	Clear	50 PS-20	White
25 S-17	Clear	60 S-21	Clear
25 G-18½	Frosted	75 PS-25	Clear
40 S-19	Clear	75 PS-22	Daylight
50 S-19	Clear	100 PS-25	Clear

Group II

Lamps maintained in the consigned stock for agents serving purchase contracts, requiring lamps for general lighting service, will be supplied from lamps in Group I and from the following:

Watt		Watt	
15	G-18½ Frosted	100 PS-25	Daylight
25	S-17 Frosted	150 PS-25	Clear
25	G-18½ Flame Tinted	150 PS-25	Bowl Enamel
25	G-25 Frosted	150 PS-25	Daylight
25	P-19 Clear	200 PS-30	Clear
25	P-19 Frosted	200 PS-30	Bowl Enamel
40	S-19 Frosted	200 PS-30	Daylight
40	G-25 Frosted	300 PS-35	Clear
50	P-19 Clear	300 PS-35	Bowl Enamel
50	PS-20 Clear	300 PS-35	Daylight
75	PS-22 White	500 PS-40	Clear
100	PS-25 White	500 PS-40	Bowl Enamel
100	PS-25 Bowl Enamel		

Group III

Form B agents may carry in the consigned stock in their custody, in addition to such lamps as may be required from Groups I and II, such of the following lamps as are necessary. These lamps will be shipped by the Form B agents direct to purchasers served either by them or by the retail agents they serve.

Watt		Watt	
10	S-14 Colored	25	G-25 Flame Tinted
10	S-17 Clear	40	S-19 Colored
15	S-17 Frosted	40	G-25 Flame Tinted
15	D-10 Frosted	50	PS-20 Daylight
15	G-16½ Frosted	750	PS-52 Clear
25	S-17 Colored	1000	PS-52 Clear

Lamps in Group IV comprise all other lamps in the Price Schedules of Standard Large MAZDA Lamps not given above, will be carried in Manufacturer's warehouses and will be shipped by the Manufacturer direct to Purchasers at Agent's request.

WESTINGHOUSE MAZDA LAMPS

GUIDE TO CONSIGNMENT OF MAZDA LAMPS
Special Lighting Service

GROUP I—SPECIAL

Lamps maintained in the consigned stock for retail agents known to be selling lamps for some special lighting service, will be supplied from the following lamps for such special service.

220, 230, 240 and 250 Volts

25 Watt S-19 Clear	100 Watt PS-25 Clear
50 Watt P-19 Clear	

Sign

10 Watt S-14 115 Volt 25 Watt P-19 Blue

Country Home Lighting

10 Watt S-17 Clear	50 Watt PS-20 Clear
25 Watt S-17 Clear	50 Watt PS-20 White
40 Watt S-19 Clear	

Projection
None

Mine	Street Railway	Train	Street Series
None	None	None	None

GROUP II—SPECIAL

Lamps maintained in the consigned stock for agents serving purchase contracts, requiring lamps for some special lighting service, will be supplied from lamps in Group I-Special and from the following, for such special service.

220, 230, 240 and 250 Volts

100 Watt PS-25 B. Enl.	300 Watt PS-35 B. Enl.
200 Watt PS-30 Clear	500 Watt PS-40 Clear
200 Watt PS-30 B. Enl.	500 Watt PS-40 B. Enl.
300 Watt PS-35 Clear	

110, 115 and 120 Volts
25 Watt T-10 Clear

Sign
50 Watt P-19 Blue

Floodlighting

250 Watt G-30	500 Watt G-40

Country Home Lighting

15 Watt S-17 Clear	75 Watt PS-22 Clear
25 Watt G-18½ Frosted	100 Watt PS-25 Clear
25 Watt PS-16 White	

Street Series

600 Lumens 6.6 Amp.	10000 Lumens 20 Amp.
800 Lumens 6.6 Amp.	600 Lumens 4, 5.5 and 7.5 Amp.
1000 Lumens 6.6 Amp.	
2500 Lumens 6.6 Amp.	800 Lumens 4, 5.5 and 7.5 Amp.
4000 Lumens 6.6 Amp.	
6000 Lumens 6.6 Amp.	1000 Lumens 4, 5.5 and 7.5 Amp.
4000 Lumens 15 Amp.	
6000 Lumens 20 Amp.	

Mine—275 Volts
50 Watt P-19

Street Railway
None

Train
None

Projection

100 Watt G-25	400 Watt T-20
250 Watt T-14	1000 Watt T-20

GROUP III—SPECIAL

Form B Agents may carry in the consigned stock in their custody, in addition to such lamps as may be required from Group I-Spl. and II-Spl., such of the following lamps for such special lighting service as may be necessary. These lamps will be shipped by the Form B agents direct to purchasers served either by them or by the retail agents they serve.

Group III—Special continued on following page.

WESTINGHOUSE MAZDA LAMPS

Special Lighting Service—(Continued)

GROUP III—SPECIAL

220, 230, 240 and 250 Volts—None

Street Railway

23 Watt S-17	56 Watt S-21
23 Watt G-18½	94 Watt S-24 ½
36 Watt S-19	94 Watt G-25
36 Watt G-18½	

Projection

250 Watt G-30 — 400 Watt G-30

Train

15 Watt S-17 30 Volts	50 Watt PS-20 30 Volts
15 Watt S-17 33 V. Cab.	50 Watt PS-20 60 Volts
15 Watt S-17 60 Volts	50 Watt PS-20 B.F.
15 Watt G-18½ 30 Volts	30 Volts
15 Watt G-18½ 60 Volts	75 Watt PS-22 30 Volts
25 Watt S-17 30 Volts	75 Watt PS-22 60 Volts
25 Watt S-17 60 Volts	100 Watt G-25 L.H. 30 V.
25 Watt G-18½ 30 Volts	100 Watt PS-25 30 Volts
25 Watt G-18½ 60 Volts	100 Watt PS-25 60 Volts
25 Watt PS-16 30 Volts	250 Watt G-30 L.H. 30 V.

Sign

5 Watt S-14 12 Volts — 5 Watt S-14 60 Volts

Mine	Street Series	Country Home Light'g
None	None	None

Lamps in Group IV comprise all other lamps in the Price Schedules of Standard Large MAZDA Lamps not given above, will be carried in Manufacturer's warehouses and will be shipped by the Manufacturer direct to Purchasers at Agent's request.

HOW TO ORDER LAMPS

All orders should specify whether Mazda B, Mazda C, Daylight Mazda or White Mazda lamps are desired and should give the following information:

1—Quantity—Number of lamps desired. Purchasers will avoid delays and get best discount by ordering package quantities.

2—Size of Lamps—Specify wattage of multiple lamps and lumens of series lamps.

3—Voltage—For multiple lamps. Amperes—For series lamps.

4—Bulb—For example: S-19, G-25, T-8, PS-25, etc. The letter in the bulb designation indicates its shape and the figure its diameter in eighths of an inch. Thus an S-19 bulb is straight-sided and is 19/8 or 2⅜ inches in diameter. G indicates a round (globular), T a tubular, P and PS a pear-shape bulb.

5—Finish of Bulb—Clear, bowl enameled or all frosted.

6—Base—Medium screw or mogul screw.

7—Service—For example: Projection, Flood Lighting, Locomotive Headlight, etc.

EXTRA CHARGES FOR SPECIAL FEATURES

Sprayed Coloring

The following list additional charges shall be added to the list prices of clear lamps, either red, blue, green, yellow, amber-orange and ivory or flame tint.

List Price of Clear Lamps	List Add'l Charge for Spray Coloring
Less than $1.00	**$0.10**
$1.00 to $1.99	**.20**
2.00 to 2.99	**.30**
3.00 to 3.99	**.40**
4.00 to 4.99	**.50**

These extra charges apply only to the manufacturer's standard spray colors and spray tints.

WESTINGHOUSE MAZDA LAMPS

EXTRA CHARGES FOR SPECIAL FEATURES

Natural Coloring

For natural colored lamps add the following percentage charges to the list prices of clear lamps:

Natural Color	S-17, S-19, S-21, S-30, P S - 1 6, P S - 2 0, PS-22, PS-25, G-18½, G-25, G-30, P-19, T-8 and T-10 Bulbs	S-14 Bulb
Green or Blue	50%	40%
Purple	75%	60%
Ruby or Opal	100%	75%
Amber or Canary	150%	100%

The extra charges given above cover only bulbs of the manufacturer's standard colored glass.

Frosting

The following list additional charges shall be added to list prices of clear lamps for either bowl or all frosting such clear lamps:

List Price of Clear Lamps	List Additional Charge for Frosting	List Price of Clear Lamps	List Add'l Charge for Frosting
Less than $1.00	**$0.05**	**$6.00 to $6.99**	**$0.35**
$1.00 to $1.99	**.10**	**7.00 to 7.99**	**.40**
2.00 to 2.99	**.15**	8.00 to 8.99	**.45**
3.00 to 3.99	**.20**	9.00 to 9.99	**.50**
4.00 to 4.99	**.25**	10.00 to 10.99	**.55**
5.00 to 5.99	**.30**	11.00 to 11.99	**.60**

Etching

Additional charges for etching letters or designs may be obtained upon application to the manufacturer. Styles of lettering or design should accompany such application. Etched lamps are not rejectable by the purchaser under the provisions of the standard specifications governing the rejection of clear lamps (See part 1 section 1 clause 3, Standard Specifications for Large Tungsten Filament Incandescent Electric Lamps, May 1, 1923).

Voltage

As lamps for 110, 115 and 120 volts **cover ap**proximately 90 per cent of the demand, lamps for other voltages between 100 and 130 are not regularly carried in stock in all places but may be obtained at the same prices.

As lamps for 220, 230, 240 and 250 volts cover approximately 90 per cent of the demand, lamps for other voltages between 200 and 260 are not regularly carried in stock in all places but may be obtained at the same prices.

Lamps for 265, 270, 280, 285, 290, 295 and 300 volts may be supplied at the same list prcies as those for 275 volts.

SPECIAL LAMPS

Any lamp requiring a change in construction from the standard, such as shape or color or bulb, number of loops in filament, number of anchors, wattage, voltage, amperes, etc., will take a special price, which may be obtained upon application.

As it is impossible to always produce an exact quantity of any special lamps ordered, or of any lamps to be made tipless (when listed as tipped) or of any lamps to be furnished with natural colored spray colored or spray tinted bulbs, all such orders may be filled either short or in excess, within the limits of 10 per cent, except that on orders for 20 lamps or less, the shortage or excess will not exceed two lamps.

WESTINGHOUSE MINIATURE MAZDA LAMPS

FLASHLIGHT SERVICE

Miniature Screw Base

Nos. 1-2 Nos. 13-14 Nos. 16-17 Nos. 18-19 No. 31 No. 35

MAZDA Lamp No.	Cell	Position	Bulb	Volts	Amp.	Unit Pkg. Qty.	Price Each
* 1	2	B	FE-2½	2.2	0.25	10	$0.15
2	3	B	FE-2½	3.3	0.25	10	.15
* 11	2	B	G-3½	2.3	0.27	10	.15
12	3	B	G-3½	3.5	0.27	10	.15
*‡13	3	B	G-3½	3.8	0.30	10	.20
*‡14	2	B	G-3½	2.5	0.30	10	.20
* 16	2	B	G-4½	2.5	0.30	10	.15
* 17	3	B	G-4½	3.8	0.30	10	.15
18	3	B	G-4½	4.0	0.30	10	.15
31	5	B	G-5½	6.2	0.30	10	.15

STANDARD DRY BATTERY SERVICE

* 19	1	B	G-4½	1.25	0.60	10	.15
35	2	B	G-5½	2.4	0.80	10	.15

*Represents over 90 per cent of the demand for flashlight lamps.

‡Concentrated filament for focusing flashlights only.

AUTOMOBILE SERVICE

Excluding Lamps for Ford Cars

No. 61 No. 63 Nos. 67-71 No. 72 No. 81 No. 89

MAZDA Lamp No.	† Position	MAZDA Bulb	Volts	C.P.	Unit Pkg. Qty.	Price Each
* 61 } 62 }	R-I	B G-6	3–4	2	10	$0.20
* 63 } * 64 }	R-I-St Si-A	B G-6	6–8	2	10	.20
* 67 } 68 }	R-I-St Si-A	B G-6	12–16	2	10	.25
71 } 72 }	R-I	B G-6	18–24	2	10	.30
* 81 } 82 }	D-P	B G-8	6–8	4	10	.25
89 } 90 }	D-P	B G-8	12–16	4	10	.30
*1129 } *1130 }	H-Sp	C S-11	6–8	21	10	.35
1133 } 1134 }	H-Sp	C S-11	6–8	32	10	.55
*1141 } *1142 }	H-Sp	C S-11	12–16	21	10	.40
1143 } 1144 }	H-Sp	C S-11	12–16	32	10	.60
1145 } 1146 }	H-Sp	C S-11	18–24	27	10	.60

*Represents over 90 per cent of the demand for motor vehicle lamps.

†H, head lamp; R, rear lamp; Sp, spot lamp; Si, side lamp; St, step lamp; A, auxiliary head lamp; I, instrument lamp; D, dome lamp; P, panel lamp.

WESTINGHOUSE MINIATURE MAZDA LAMPS

AUTOMOBILE SERVICE—Ford Cars

No. 1129 No. 1136 No. 1146 No. 1158

MAZDA Lamp No.	† Position	MAZDA Bulb	Volts	C.P.	Unit Pkg. Qty.	Price Each
*§ 63	R-I-A	B G-6	6–8	2	10	$0.20
§ 72	R	B G-6	18–24	2	10	.30
*‡1129 } *‡1130 }	H	C S-11	6–8	21	10	.35
¶1136	H	B S-11	9	18	10	.35
§1138	H	C S-11	9	27	10	.40
§1146	Sp	C S-11	18–24	27	10	.60
*‡1158	H	C S-11	6–8	21	10	.45
*‡1158	H	C S-11	6–8	2	10	.45
*¶1160	H	C S-11	9	21	10	.35

‡For cars equipped with 3 cell (lead type) storage battery-generator lighting system.

§For use on magneto lighting system.

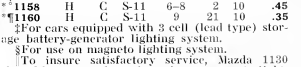
¶To insure satisfactory service, Mazda 1130 should be operated two in series on magneto lighting system equipped with reactance coil.

*To be burned two in series on magneto lighting system not equipped with reactance coil.

*For use on Ford and other cars wired for two filament lamps.

AUTOMOBILE SERVICE

Fixed Focus Devices‡



No. 1101 No. 1130 No. 110 No. 1150

MAZDA Lamp No.	† Position	MAZDA Bulb	Volts	C.P.	Unit Pkg. Qty.	Price Each
1101 } 1102 }	H-Sp	C S-11	6–8	21	10	$0.38
§1108	H	C S-11	6–8	21	10	.48
§1108	H	C S-11	6–8	2	10	.48
1111 } 1112 }	H-Sp	C S-11	12–16	21	10	.43
MOTORCYCLE SERVICE						
* 63	A-R	B G-6	6–8	2	10	.20
* 64	Sc	B G-6	6–8	2	10	.20
*1129	H-Sp	C S-11	6–8	21	10	.35
*1130	Sp	C S-11	6–8	21	10	.35
ELECTRIC VEHICLE SERVICE						
110	R-I	B G-10	40–44	6	10	.70
1150	H-Si	C S-11	40–44	21	10	.70

*Represents over 90 per cent of the demand for motor vehicle lamps.

†H, head lamp; R, rear lamp; Sp, spot lamp; Si, side lamp; St, step lamp; Sc, side car; A, auxiliary head lamp; I, instrument lamp; D, dome lamp; P, panel lamp.

‡These lamps are designed, primarily, to operate in conjunction with fixed focus headlighting equipment.

§For use on Ford and other cars wired for two filament lamps.

CARBON LAMPS

FOR STANDARD LIGHTING SERVICE

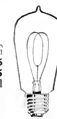
Schedule C-1

With Medium Screw Base

S-14, 110-125 Volts

Watts	Efficiency W.P.C.	Std. Pkg.	Price Each Clear	Price Each Frosted
10	5.00	250	**$0.22**	**$0.25**

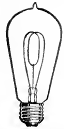
Diam. of bulb, 1¾ in. Max. over all length, 3½ in.



S-17, 110-125 Volts

Watts	Efficiency W.P.C.	Std. Pkg.	Price Each Clear	Price Each Frosted
20	4.15	250	**$0.22**	**$0.25**
30	3.23	250	**.22**	**.25**

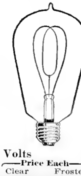
Diam. of bulb, 2⅛ in. Max. over all length, 5 1/16 in.



S-19, 110-125 Volts

Watts	Efficiency W.P.C.	Std. Pkg.	Price Each Clear	Price Each Frosted
50	2.97	250	**$0.22**	**$0.25**
60	2.97	250	**.22**	**.25**

Diam. of bulb, 2⅜ in. Max. over all length, 5 9/16 in.



S-24½, 110-125 Volts

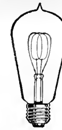
Watts	Efficiency W.P.C.	Std. Pkg.	Price Each Clear	Price Each Frosted
120	3.00	100	**$0.30**	**$0.35**
220-250 Volts				
120	3.70	100	**.35**	**.40**

Diam. of bulb, 3 1/16 in. Max. over all length, 6 in.

S-17, 220-250 Volts

Watts	Efficiency W.P.C.	Std. Pkg.	Price Each Clear	Price Each Frosted
35	4.40	250	**$0.24**	**$.027**

Diam. of bulb, 2⅛ in. Max. over all length, 5 1/16 in.



S-19, 220-250 Volts

Watts	Efficiency W.P.C.	Std. Pkg.	Price Each Clear	Price Each Frosted
60	3.69	250	**$0.24**	**$0.27**

Diam. of bulb, 2⅜ in. Max. over all length, 5 9/16 in.

FOR STREET RAILWAY SERVICE—Schedule C-2

S-19, Medium Screw Base

These lamps are selected for amperes and are labeled for use, five in series, on 525, 550, 575, 600, 625 and 650 volts.

Watts	Efficiency W.P.C.	Std. Pkg.	Price Each Clear	Price Each Frosted
64	4.0	250	**$0.22**	**$0.25**

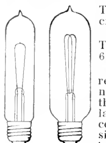
Diam. of bulb, 2⅜ in. Max. over all length, 5 9/16 in.

Standard package discounts for lamps in the above schedules can be given on orders for not less than a standard package quantity. For any one size of bulb, lamps of different voltages, wattages and finish of bulb may be combined in one package.

CARBON LAMPS

RESISTANCE LAMPS—Schedule M-8

Medium Screw Base T-10 or T-14 Bulb



Lamps will be furnished in T-14 bulb unless otherwise specified.

Maximum over all length of T-10 bulb, 6 inches; T-14 bulb, 6⅛ inches.

*The first six of the low current types have a cold resistance not to exceed 111 per cent of the hot resistance, while in the last two types it does not exceed 125 per cent. The hot resistance of the high current types is one-half of the cold.

Low Current

*Resistance in Ohms Cold	Hot	Amps.	Volts	Watts	Price Each Clear	Price Each Frosted
40 and Below	36 and Below	0.3	3– 11	0.9– 3.3	**$0.40**	**$0.45**
41– 80	37– 72	0.3	11– 22	3.3– 6.6	**.48**	**.53**
81–100	73– 90	0.3	22– 27	6.6– 8.1	**.53**	**.58**
101–140	91–126	0.14	13– 18	1.8– 2.5	**.40**	**.45**
141–280	127–252	0.14	18– 32	2.5– 4.5	**.48**	**.53**
281–350	253–315	0.14	32– 40	4.5– 5.6	**.53**	**.58**
351–600	281–480	0.14	40– 67	5.6– 9.4	**.48**	**.53**
601–900	481–720	0.14	67–101	9.4–14.1	**.53**	**.58**
High Current						
50.	25.	1. 0	25	25	**.65**	**.70**
100	50.	1. 0	50	50	**.65**	**.70**
150.	75.	1. 0	75	75	**.65**	**.70**
25.	12.5	2. 0	25	50	**.65**	**.70**
16.66	8.33	3. 0	25	75	**.65**	**.70**

EXTRA CHARGES

All extra percentage charges shall be figured on the basic list price of the clear lamps.

Tipless Lamps.—The prices given in schedules cover lamps with a tip, unless otherwise indicated; for tipless lamps the additional charge is 10 per cent.

Colored Lamps.—For superficial coloring (all schedules), add 25 per cent to list price of clear lamps. For natural colored lamps, add the following percentage charges to the price of clear lamps in the following bulbs: S14, S17, S19 and S24½. Green or blue, 50 per cent; purple, 75 per cent; ruby or opal, 100 per cent; amber or canary, 150 per cent.

The extra charges given above cover only standard colored glass. Specially colored glass bulbs will take a higher price, which will be furnished on application.

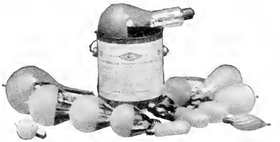
As it is impossible always to produce an exact quantity of any lamps to be made tipless (when listed tipped), or of any lamps to be furnished in natural colored bulbs, all such orders may be filled either short or in excess, within the limits of 10 per cent, and not more than two lamps short or excess on orders for 20 lamps or less.

Bases.—The prices on each schedule cover only the base or bases stated therein. The price of lamps fitted with other bases may be obtained on application.

No reduction in the price of lamps regularly based, when furnished unbased.

Etching Letters.—For etching letters or designs on lamps, add the following: 64 watts or under, ½c net per lamp; over 64 watts, ¾c net per lamp.

ETCH-O-LITE



Applied by dipping the lamp, or other article to be frosted in the solution. The coating is allowed to remain on the glass for 1½ or 2 minutes, then it is scraped back into the can and the article washed in water and dried. The gloss is removed from the glass, leaving a smooth satin-like frosted surface. If the solution becomes too thick, it may be thinned to proper consistency by adding a small quantity of thinner. The dipping machine, as illustrated, is recommended for use in obtaining a uniform depth of bowl frost on electric light bulbs.

Size of Can	Contents Pounds	Largest Lamp That Can Be Dipped	Price Each
Small	4	150-W	$ 6.00
Medium	8	300-W	11.60
Large	12	500-W	15.60

Thinner, ½ Pint Cans............ **1.00**
Dipping Machines **3.50**

LAMP COLORING

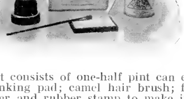
CRESCENT

Furnished in blue, green, purple, amber, red, ruby, violet, canary, pink and frosting. Four ounce to quart size in bottles and individual cartons; large sizes in jugs. A dipping cup furnished with each pint and quart.

Mfrs. No	Quantity	Price Each
2762	Gallon	**$14.00**
2763	Half Gallon	**7.50**
2764	Quart	**4.00**
2765	Pint	**2.00**
2766	Half Pint	**1.00**

No. 2762

REED'S GLASS ETCHING INK



The outfit consists of one-half pint can etching ink; lead inking pad; camel hair brush; flexible form adapter and rubber stamp to make impression. With this outfit 10,000 to 12,000 pieces of glassware can be easily and permanently marked.

Standard Outfit, Including Ink........................**$14.00**
Half Pint Can Ink................ .... **8.50**

EVEREADY UNIT CELLS

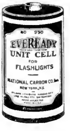
No. 935

Mfrs No.	No. of Cells	Size In.	Unit Pkg.Qty.	Price Each
935	1	1⅞x1	24	**$0.15**

2 Unit Cells No. 935 equivalent of 1 No. 791 Battery.

Two Eveready Unit Cells No. 935 required for Eveready Flashlights Nos. 2602, 2630, 2660, 2661, 2691, 2692 and 6993.

No. 950



Mfrs. No	No of Cells	Size In.	Unit Pkg.Qty.	Price Each
950	1	2⅜x1¼	36	**$0.17**

2 Unit Cells No. 950 equivalent of 1 No. 790 Battery.

3 Unit Cells No. 950 equivalent of 1 No. 705 Battery.

Two Eveready Unit Cells No. 950 required for Eveready Flashlights Nos. 2604, 2631, 2616, 2634 and 2671.

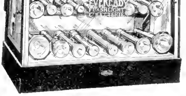
Three Eveready Unit Cells No. 950 required for Eveready Flashlights Nos. 2612, 2632, 2619, 2633, 2642, 2644, 2659, 2637, 2672 and 2674.

EVEREADY TUNGSTEN BATTERIES

Mfrs No	No. of Cells	Size In.	Price Each
791	2	3¾x1	**$0.30**
700	2	1⅞x1⅛x ½	**.30**
703	3	2⅝x2½x ¾	**.40**
706	2	3⅞x ⅝	**.25**
710	5	3 x3⅝	**1.10**
734	3	3 x3 13/16x1 5/16	**.65**
750	2	2¼x1¼x ⅝	**.30**
751	3	2¼x1⅞x ⅝	**.40**

Unit package quantity for No. 791 is 10.

EVEREADY FLASHLIGHT DISPLAY AND VENDING CABINET



The No. 1722 Eveready Flashlight Display and Vending Cabinet combines into one piece of furniture an attractive sales-compelling cabinet for displaying Eveready Flashlights, and a practical stock and vending compartment for No. 950 and 935 Eveready Unit Cells with an attachment which automatically tests each cell as it is sold.

The Unit Cell stock and vending compartment located in the rear of the cabinet, holds a unit package each of No. 950 and No. 935 Eveready Unit Cells (36-950's and 24-935's). As each cell is removed, contact is made with a lamp in the front of the display section which lights, testing the cell, and showing the customer that it is fresh and strong.

Mfrs. No	Length In.	Height In.	Depth In.	Price Each
1722	25	17	15	**$22.00**

Weight, complete with a display of flashlight cases and stock of unit cells, about 60 pounds.

EVEREADY FLASHLIGHTS

TUBULAR TYPES

No. 2602

No. 2630

Case and Lamp Less Battery

Mfrs. Case No.	Finish	Size	Case Unit Pkg. Qty.	Price Each
2602	Vulc. Fib.	5½x1¼	3	**$1.05**
2630	Nickel	5½x1¼	3	**1.25**

	Unit—Cells			Batteries		Lamps	
Mfrs. Case No.	Mfrs. No.	Quantity Required Per Case	Price Each	Mfrs. Batt. No.	Price Each	Mfrs. Lamp No.	Price Each
2602	**935**	2	**$0.15**	**791**	**$0.30**	**1197**	**$0.15**
2630	**935**	2	**.15**	**791**	**.30**	**1197**	**.15**

No. 2604

No. 2631

Case and Lamp Less Battery

Mfrs. Case No.	Finish	Size	Case Unit Pkg. Qty.	Price Each
2604	Vulc. Fib.	6½x1½	3	**$1.35**
2631	Nickel	6½x1½	3	**1.50**

	Unit—Cells			Batteries		Lamps	
Mfrs. Case No.	Mfrs. No.	Quantity Required Per Case	Price Each	Mfrs. Batt. No.	Price Each	Mfrs. Lamp No.	Price Each
2604	**950**	2	**$0.17**	**790**	**$0.35**	**1198**	**$0.15**
2631	**950**	2	**.17**	**790**	**.35**	**1198**	**.15**

No. 2612

No. 2632

Case and Lamp Less Battery

Mfrs. Case No.	Finish	Size	Case Unit Pkg. Qty.	Price Each
2612	Vulc. Fib.	8½x1½	2	**$1.50**
2632	Nickel	8½x1½	2	**1.75**

	Unit—Cells			Batteries		Lamps	
Mfrs. Case No.	Mfrs. No.	Quantity Required Per Case	Price Each	Mfrs. Batt. No.	Price Each	Mfrs. Lamp No.	Price Each
2612	**950**	3	**$0.17**	**705**	**$0.50**	**1193**	**$0.15**
2632	**950**	3	**.17**	**705**	**.50**	**1193**	**.15**

EVEREADY FLASHLIGHTS

MINER TYPES

No. 2660

No. 2661

Case and Lamp Less Battery

Mfrs. Case No.	Finish	Size	Case Unit Pkg. Qty.	Price Each
2660	Vulc. Fib.	5¾x1¼	3	**$1.20**
2661	Nickel	5¾x1¼	3	**1.45**

	Unit—Cells			Batteries		Lamps	
Mfrs. Case No.	Mfrs. No.	Quantity Required Per Case	Price Each	Mfrs. Batt. No.	Price Each	Mfrs. Lamp No.	Price Each
2660	**935**	2	**$0.15**	**791**	**$0.30**	**1197**	**$0.15**
2661	**935**	2	**.15**	**791**	**.30**	**1197**	**.15**

No. 2616

No. 2634

Case and Lamp Less Battery

Mfrs. Case No.	Finish	Size	Case Unit Pkg. Qty.	Price Each
2616	Vulc. Fib.	6½x1½	2	**$1.65**
2634	Nickel	6½x1½	2	**2.00**

	Unit—Cells			Batteries		Lamps	
Mfrs. Case No.	Mfrs. No.	Quantity Required Per Case	Price Each	Mfrs. Batt. No.	Price Each	Mfrs. Lamp No.	Price Each
2616	**950**	2	**$0.17**	**790**	**$0.35**	**1198**	**$0.15**
2634	**950**	2	**.17**	**790**	**.35**	**1198**	**.15**

No. 2619

No. 2633

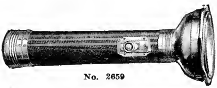
Case and Lamp Less Battery

Mfrs. Case No.	Finish	Size	Case Unit Pkg. Qty.	Price Each
2619	Vulc. Fib.	8½x1½	2	**$1.75**
2633	Nickel	8½x1½	2	**2.25**

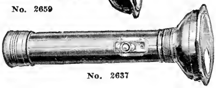
	Unit—Cells			Batteries		Lamps	
Mfrs. Case No.	Mfrs. No.	Quantity Required Per Case	Price Each	Mfrs. Batt. No.	Price Each	Mfrs. Lamp No.	Price Each
2619	**950**	3	**$0.17**	**705**	**$0.50**	**1193**	**$0.15**
2633	**950**	3	**.17**	**705**	**.50**	**1193**	**.15**

EVEREADY FLASHLIGHTS

SEARCHLIGHT TYPES



No. 2659



No. 2637

Case and Lamp Less Battery

Mfrs. Case No.	Finish	Size In.	Case Unit Pkg. Qty.	Price Each
2659	Vulc. Fibre	9x1½	1	$2.75
2637	Nickel	9x1½	1	3.00

Mfrs. Case No.	Unit—Cells Mfrs. No.	Quantity Required Per Case	Price Each	Batteries Mfrs. Batt. No.	Price Each	Lamps Mfrs. Lamp No.	Price Each
2659	950	3	$0.17	705	$0.50	1193	$0.15
2637	950	3	.17	705	.50	1193	.15

SPOTLIGHT TYPE

No. 2671—2 Cell, 200 Ft. Range

No. 2674—3 Cell, 300 Ft. Range

Case and Lamp Less Battery

Mfrs. Case No.	Finish	Size In.	Case Unit Pkg. Qty.	Price Each
2671	Vulc. Fibre	6¾x1½	1	$2.65
2672	Vulc. Fibre	9¼x1½	1	3.25
2674	Nickel	9¼x1½	1	3.25

Mfrs. Case No.	Unit—Cells Mfrs. No.	Quantity Required Per Case	Price Each	Batteries Mfrs. Batt. No.	Price Each	Lamps Mfrs. Lamp No.	Price Each
2671	950	2	$0.17	790	$0.35	1161	$0.20
2672	950	3	.17	705	.50	1162	.20
2674	950	3	.17	705	.50	1162	.20

POCKET TYPE

No. 6993

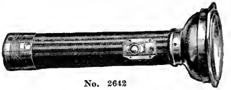
Nickel Finish
Case and Lamp Less Battery

Mfrs. No	Size In.	Case Unit Pkg. Qty.	Price Each
6993	3x2¼x1	3	$1.45

Mfrs. Case No	Unit Cells Mfrs. No	Quantity Required Per Case	Price Each	Lamps Mfrs Lamp No	Price Each
6993	935	2	$0.15	1180	$0.15

EVEREADY FLASHLIGHTS

FOCUSING SEARCHLIGHTS
With 500 Foot Range



No. 2642

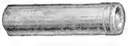
No. 2644

Case and Lamp Less Battery

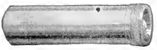
Mfrs. Case No.	Finish	Size In.	Case Unit Pkg. Qty.	Price Each
2642	Fibre	10 x1½	1	$4.00
2644	Nickel	10 x1½	1	4.00

Mfrs. Case No.	Unit—Cells Mfrs. No.	Quantity Required Per Case	Price Each	Batteries Mfrs. Batt. No.	Price Each	Lamps Mfrs. Lamp No.	Price Each
2642	950	3	$0.17	705	$0.50	1162	$0.20
2644	950	3	.17	705	.50	1162	.20

ALUMINUM FLASHLIGHTS



No. 2691

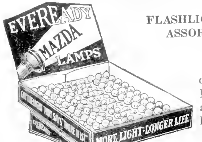


No. 2692

Case and Lamp Less Battery

Mfrs. Case No.	Finish	Size In.	Case Unit Pkg. Qty.	Price Each
2691	Aluminum	5⅛x1¼	12	$0.35
2692	Aluminum	6 x1½	12	.40

Mfrs. Case No.	Unit—Cells Mfrs. No.	Quantity Required Per Caso	Price Each	Batteries Mfrs. Batt. No.	Price Each	Lamps Mfrs. Lamp No.	Price Each
2691	935	2	$0.15	791	$0.35	1197	$0.15
2692	935	2	.17	970	.35	1198	.15

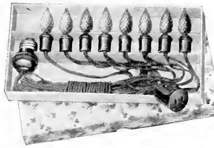


FLASHLIGHT LAMP ASSORTMENT

Assortment contains 100 lamps of type and size bulb listed below.

Mfrs. No.	Qty. of Lamps	Voltage	Flashlight in Which Lamp is Used	Price Each
1198	30	2.5	2 Cell Tubular; 2 Cell Miner; 2 Cell Searchlight	$0.15
1197	20	2.3	2 Cell Baby Tubular; 2 Cell Baby Miner	.15
1193	30	3.8	3 Cell Tubular; 3 Cell Miner; 3 Cell Searchlight	.15
1162	20	3.8	3 Cell Focusing	.20
1923	Flashlight Lamp Assortment, 100 Lamps, Value			16.00

CHRISTMAS TREE OUTFITS



UNIT TYPE C-6 MAZDA LAMPS
Assorted Colors

Mfrs. No.		Price Each
1000	8 Light Unit Outfit Complete with 15 Volt C-6 Mazda Lamps, Parallel Cord	$3.75
1001	8 Light Unit Outlit Complete with Mazda Lamps, 15 Volt C-6, Twisted Cord	3.50
1500	8 Light Unit Outfit, Pine Cone Lamps, Complete with Parallel Cord	3.00
1501	8 Light Unit Outfit, Pine Cone Lamps, Complete, Twisted Cord	2.75
2900	8 Light Unit Outfit Complete with Imported Ball Lamps, Twisted Cord	2.50
1900	8 Light Unit Outfit Complete Twisted Cord with Fancy Imported Carbon Lamps	3.50
2000	8 Light Unit Outfit Complete Twisted Cord with Imported Candle Lamps	4.00

BETTS COLOR CAPS

Made of natural color glass in six colors, blue, green, amber, purple, opal and ruby.

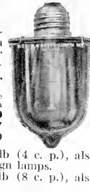
STYLE A

Used for large signs, permanent displays and channel letters as they produce the color effect by reflection without killing the light. No. S30 is for light diffusion.

Mfrs. No.	Std. Pkg.	Price Each
S14	100	$0.19
S17	25	.43
S19	25	.46
S30	25	.48

STYLE B

Especially adaptable for frequent color changes or where a deep color is required and for street decorating, window display, fire exits, elevator signals, stage lighting effects, etc.



Mfrs. No.	Std. Pkg.	Price Each
S14	100	$0.20
S17	25	.47
S19	25	.50

S14 fits standard 1¾ inch bulb (4 c. p.), also 2½, 5, 7½ and 10 watt Mazda sign lamps.

S17 fits standard 2⅛ inch bulb (8 c. p.), also 10, 15 and 20 watt Mazda lamps.

S19 fits standard 2⅜ inch bulb (16 c. p.), also 25 and 40 watt Mazda lamps.

S30 fits 200 watt nitrogen bulb, style A, opal only.

Note.—In ordering, specify style and size of bulb, not candle power.

DIM-A-LITES

A series of devices for dimming or turning down a single incandescent lamp; can be used with either carbon or Mazda lamps up to 50 watts. Five changes of light can be obtained. 30% to 80% current saved, depending upon degree of turn down.

No. 23

PULL CHAIN TYPE

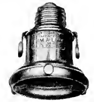
Fits any fixture or socket and takes any ordinary electric lamp. Furnished on all orders unless other types are specified. Brush brass finish.

Mfrs. No.	Std. Pkg.	Price Each
23	48	$1.25

SHADE HOLDER TYPE

Operated either by turning shade or pulling cord. Equipped with 2¼-inch shade holder. Brush brass finish.

Mfrs. No.	Std. Pkg.	Price Each
24	60	$1.25


No. 24

PULL CHAIN SHADE HOLDER TYPE

No. 34

Same as Type No. 23 except that it is equipped with 2¼-inch shade holder.

Mfrs No.	Std. Pkg.	Price Each
34	60	$1.40

PULL CHAIN SOCKET

Combines standard pull chain socket and Dim-a-lite. Wired permanently to fixture or portable lamp. Furnished with ⅛-inch cap. This socket fits standard husks and takes any standard shade holder. Brush brass finish.

Mfrs. No	Std. Pkg.	Price Each
33	100	$1.00

No. 33

DIM-A-LAMP

No. 45

A utility lamp 13¾ inches high with a base 3x5 inches and a reflector 5½ inches in diameter. It clamps, stands, hangs anywhere and in addition gives five changes of light. Furnished in Brass, Bronze or Ivory finish, complete with separable plug, 8 ft. cord and the Dim-a-lite socket.

Mfrs. No.	Finish	Std. Pkg.	Price Each
45	Brush Brass	12	$4.50
45	Bronze	12	5.00
45	Ivory	12	5.00

WIRT FAN AND VIBRATOR REGULATOR

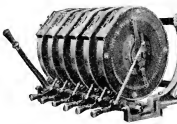
A rheostat to give four speeds for single speed devices of not more than 60 watts. Furnished in nickel, brush brass and gun metal finish.

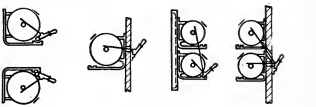
Mfrs No	Std. Pkg.	Price Each
91	60	$1.65

No. 91

C-H SIMPLICITY THEATRE DIMMERS

FOR TWO AND THREE WIRE SYSTEMS





Standard dimmers are intended for use where the dimmer is in circuit for comparatively short periods only. When dimmers are desired for continuous duty, as in moving picture-theatre house lights, corridors, etc., the following ratings should not be exceeded: Single-sided plate, 2,400 watts; double-sided plate, 2,800 watts.

The dimmers may be used on direct or alternating current. Dimmers are interlocking. Master lever for every bank of dimmers of six plates or more. Banking six to twelve plates in one row for Nos. 1, 2 and 6. Twelve to twenty-four plates may be banked in two rows with one row of operating levers for Nos. 25 and 26. The resistance arm of each dimmer is operated by a rack and pinion drive from a lever. One hundred ten steps of resistance are provided, enough to dim the lights completely out without flickering. Individual plates are easily removed from bank.

STANDARD CONSTRUCTION

Type	Number of Plates	Wt. Lbs. Each	Price Each Nos. 1 or 2	Nos. 6 or 25	Nos. 26
A	1	60	$40.00	$44.00	$48.00
B	1	60	52.00	56.00	60.00
C	2	120	77.00	83.00	89.00
D	2	120	88.00	94.00	100.00
E	2	120	99.00	105.00	111.00
F	3	180	113.00	121.00	129.00
G	3	180	124.00	132.00	140.00
H	3	180	136.00	144.00	152.00
I	4	240	150.00	160.00	170.00
J	4	240	172.00	182.00	192.00
K	1	60	57.00	63.00	69.00
L	3	180	128.00	138.00	146.00
M	3	180	151.00	161.00	169.00

The prices given in the table cover interlocking dimmers, banked in frames and applied only when the number of plates given below are ordered.

For Nos. 1, 2 and 6—6 to 12 plates in one row. For Nos. 25 and 26—12 to 24 plates in two rows, with one row of operating levers.

For banking other than standard, the prices are as follows:

Banking Less Plates Than Standard

Nos. 1 and 2 add	$18.00
No. 6 add	22.00
No. 25 add	37.00
No. 26 add	39.00

Banking More Plates Than Standard

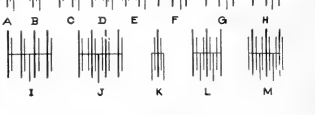
When more than twelve plates for the Nos. 1, 2 or 6 constructions or more than twelve plates in each row for the Nos. 25 or 26 constructions are required, the dimmer becomes special and prices will be furnished on application.

The prices given in the table include a master lever for every bank of six plates or more. For each additional master over the allotted number, and when a master is desired on a bank of less than six plates, add for each **$10.00**. This price does not apply for grand master lever.

For non-interlocking dimmers, Types A to J, deduct **$1.00**. Types K to M, deduct **$2.00**.

Further information, approximate dimensions, etc., on request.

METHODS OF ASSEMBLY



ELECTRICAL DATA

2-Wire, 110 Volts; 3-Wire, 110-220 Volts

Single Dimmers

Total Wattage Lamps	2-Wire Type	2-Wire Mfrs. No.	3-Wire Type	3-Wire Mfrs. No.
450	A	30150	B	30250
600	A	30151	B	30251
750	A	30152	B	30252
900	A	30153	B	30253
1200	A	30154	B	30254
1500	A	30155	B	30255
1800	A	30156	B	30256
2100	A	30157	B	30257
2400	A	30158	B	30258
2700	A	30159	B	30259
3000	A	30160	B	30260
3300	B	30161	B	30261
3600	B	30162	B	30262
4200	C	30163	C	30263
4800	C	30164	C	30264
5400	C	30165	C	30265
6000	C	30166	C	30266
6600	D	30167	E	30267
7200	E	30168	E	30268
8100	F	30169	G	30269
9000	F	30170	G	30270
9600	G	30171	G	30271
10200	H	30172	I	30272
10800	I	30173	I	30273
12000	I	30174	I	30274
13200	J	30175	J	30275

Combination Dimmers

Total Wattage Lamps	Type	2-Wire Mfrs. No.	2-Wire Wattage Lamps	Type	Mfrs. No.
450	K	30176	1500	K	30181
600	K	30177	1800	K	30182
750	K	30178	4200	L	30183
900	K	30179	4800	L	30184
1200	K	30180	5400	M	30185

C-H THEATRE DIMMERS

ALTERNATING OR DIRECT CURRENT

These dimmers are used in small theatres, lodge halls, etc. They are capable of controlling metallic filament lamps up to a total of 2640 watts.

Either one or two plates, operated by a single lever, are used. The standard dimmer is arranged for mounting flat against the wall or switchboard with the operating lever in front.

110 Volts—2 Wire

Mfrs. No.	Total Wattage In Lamps	Max. Amps.	Total Ohms	No. of Steps	No. and Size Plates Io.	Wt. Lbs. Each	Price Each
17001	200	1.75	200	24	**1–10**	20	**$9.00**
17002	360	3.15	110	24	**1–10**	20	**9.00**
17003	500	4.4	80	24	**1–10**	20	**9.00**
17004	660	5.7	60	40	**1–12**	25	**11.00**
17005	900	7.8	44	40	**1–12**	25	**11.00**
17006	1100	9.6	36	60	**1–15**	30	**13.00**
17007	1320	11.5	30	60	**1–15**	30	**13.00**
17008	1800	15.7	22	120	**2–15**	60	**24.00**
17009	2200	19.1	18	120	**2–15**	60	**24.00**
17010	2640	23.	15	120	**2–15**	60	**24.00**

220 Volts—2 Wire

17021	200	.87	800	24	**1–10**	20	**9.00**
17022	360	1.56	450	24	**1–10**	20	**9.00**
17023	500	2.2	320	24	**1–10**	20	**9.00**
17024	660	2.9	240	40	**1–12**	25	**11.00**
17025	900	3.9	180	40	**1–12**	25	**11.00**
17026	1100	4.8	145	60	**1–15**	30	**13.00**
17027	1320	5.8	121	60	**1–15**	30	**13.00**
17028	1800	7.8	89	120	**2–15**	60	**24.00**
17029	2200	9.6	73	120	**2–15**	60	**24.00**
17030	2640	11.5	60	120	**2–15**	60	**24.00**

***110-220 Volts—3 Wire**

17041	400	1.75	200	24	**2–10**	40	**14.00**
17042	720	3.15	110	24	**2–10**	40	**14.00**
17043	1000	4.4	80	24	**2–10**	40	**14.00**
17044	1320	5.7	60	40	**2–12**	50	**19.00**
17045	1800	7.8	44	40	**2–12**	50	**19.00**
17046	2200	9.6	36	60	**2–15**	60	**24.00**
17047	2640	11.5	30	60	**2–15**	60	**24.00**

*On the 110-220 volt, 3 wire system the data under "maximum amps." and "total ohms" is given for one side only of a 3 wire circuit.

EDGEWISE MOUNTING BRACKET FOR WALL

No. **16998**—10 or 12 Inch Plates; Weight Each, 15 Lbs. Price Each..... **$4.00**

No. **16999**—15 Inch Plates; Weight Each, 20 Lbs. Price Each **5.00**

Rear of board mounting with hand-wheel drive: Dimmers may also be mounted at the rear of the switchboard and driven from the front by means of a set of hand-wheel accessories.

Note.—State on order: Mfrs. No. of dimmer, Mfrs. No. of edgewise mounting bracket if desired, whether rear of board mounting is desired.

BETTS ELECTRIC SIGN FLASHERS

Will produce any known flashing effect. Adjustable, interchangeable contact sectors—Used in conjunction with patented brush holders makes it possible to rapidly change flasher completely for different effects, such as time adjustments and simultaneous or intermittent flashings. Have angle steel frames, ball bearings thruout and oil tight transmission gear housing. Gears are hobcut and run in graphite grease. Supplied with 110-120 volt direct or 60 cycle current motor, mounted on slate base. Are guaranteed for two years and approved by Board of Fire Underwriters.

ON AND OFF OR SPELLING TYPE

These machines are used to flash one or more circuits, such as a whole sign on and off, varied color effects, spelling a word, etc. Made to handle loads of three amperes and up. Illustration shows a **No. 15-1,** 15 ampere, one switch flasher, with special sheet steel hinged top cabinet.

FLASHERS ONLY

D.C. 440 Watts—Per Switch—A.C. 500 Watts

Mfrs. No.	No. of Switches	Size Inches	Wt. Lbs. Each	Price Each	Cabinet Extra
5-1	1	11x13x13	67	**$18.00**	**$9.00**
5-2	2	11x13x13	68	**20.00**	**9.00**

For each additional switch add **$2.00** to list.

D.C. 880 Watts—Per Switch—A.C. 1100 Watts

10-1	1	13½x13x11	69	**$21.00**	**$9.00**
10-2	2	15½x13x11	70	**24.00**	**9.00**

For each additional switch add **$3.00** to list.

D.C. 1300 Watts—Per Switch—A.C. 1620 Watts

15-1	1	14x13x11	71	**$24.00**	**$9.00**
15-2	2	16x13x11	72	**28.00**	**9.00**

For each additional switch add **$4.00** to list.

HIGH SPEED TYPE

No. HHS4

Used for producing such effects as running water, foam, smoke, steam, dust, revolving wheels and circles, whirling borders and similar effects.

Capacity, 3 Amperes per Circuit at 100 to 120 Volts

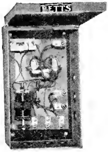
Mfrs. No.	No. of Switches	Size Inches	Wt. Lbs. Each	Price Each	Cabinet Extra
HS4	4	16x13x11	72	**$24.00**	**$9.00**

For each additional switch add **$2.50** to list.

HHS4	4	19x13½x11	77	**$32.00**	**$10.35**

For each additional switch add **$4.00** to list.

BETTS AUTOMATIC MOTORLESS FLASHERS



VACU TYPE

An instantaneous breaking double or single circuit flasher, operating on either direct or alternating current; used for flashing heavy loads ranging from 1100 to 2200 watts. Not affected by temperature changes. Arc is disrupted within a vacuum tube of mercury. Are furnished with japanned pressed steel boxes; approved by the underwriters.

Single Circuit

Mfrs. No.	Volts	Watts Per Circuit	Size Inches	Wt.Lbs. Each	Price Each
101V	110	1100	3½x7x14	25	**$23.50**
201V	110	2200	3½x7x14	26	**29.50**
		Double Circuit			
102V	110	1100	3½x7x14	25	**23.50**
202V	110	2200	3½x7x14	26	**29.50**

In ordering specify for alternating or direct current.

Note. If wanted for use on 220 volts, reduce rating fifty per cent. and add 30% to list price.

THERMO-WYNKS

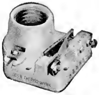
Are wound with special resistance wire; have compensated thermostats, not affected by temperature changes; platinum contacts; mounted on porcelain bases and are easily adjustable. For use on either alternating or direct current.

BABY TYPE

Designed especially for small one-lamp display signs.

No. 670

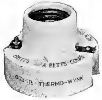
Mfrs. No	Volts	Cap.Amp. Per Circuit	Watts Per Circuit	Size Inches	Wt Ozs Each	Price Each
670	110	½	60	2x1⅛	2	**$1.00**



Nos. 650-651

With Lamp Receptacle

Adapted for small window transparencies. Same specifications as No. 670.



Nos. 660-661

Mfrs. No.	Volts	Watts Per Circuit	Size Inches	Wt Ozs. Each	Price Each
650	110	60	2¼x3	6	**$1.20**
651	110	100	2¼x3	6	**1.70**
660	110	60	2¾x2⅜	5½	**1.30**
661	110	100	2¾x2⅜	5½	**1.80**

Note.—For 6, 8, 32, 220 or 250 volt Thermo Wynks, add 30%. Wattage capacity on 220 to 250 volts is reduced 50%, and on voltages less than 100 the capacity is reduced proportionate to the decrease in voltage. All types work on A.C. or D.C.

MOTORLESS FLASHERS

SKEDOODLE FLASHING PLUGS

No. 162

These plugs fit any ordinary sockets and standard lamps. Flashes at regular intervals and can be easily adjusted to change periods. Suitable for Window Signs, Store Fronts, Illuminated Figures, Lettered Globes, Miniature Lamp Strings, and Electric Advertising Displays of all kinds. Approved by National Board of Underwriters.

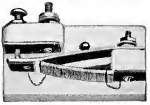
Mfrs. No.	Volts	Max. Cap. Watts	Dimen. In.	Wt. Oz.	Price Each
162	100-125	60	1 5/16x3¼	3	**$1.50**
163	100-125	100	1 5/16x3¼	3	**2.00**

For 6-8, 32, 220 volts add 30%.

For 220 volts reduce wattage rating 50%.

SKEDOODLE MIDGET FLASHERS

This Flasher is designed to go in the smallest possible space which reliability will permit. The rigid mono-metallic thermostat and spring tension insure perfect operation and durability.



No. 160

Mfrs. No.	Volts	Max. Cap. Watts	Dimen. In.	Wt. Oz.	Price Each
160	100-125	60	2x1¾x⅝	1½	**$1.00**

For 6-8, 32, 220 volts add 30%.

For 220 volts reduce wattage rating 50%.

SKEDOODLE TYPE A FLASHERS

Single Circuit—110-120 Watts

No. 125

This flasher employs a Mono-metallic thermostat, both ends of which being securely bolted, it is absolutely unaffected by vibration.

Connected in series—for direct or alternating current. Approved by National Board of Underwriters.

Mfrs. No.	Volts	Max. Cap. Watts	Dimen. In.	Wt. Oz.	Price Each
125	100-125	110	2x5x2	7½	**$2.10**
127	100-125	220	2x5x2	7½	**2.90**

For 6-8, 32, 220 volts add 30%.

For 220 volts reduce wattage rating 50%.

SKEDOODLE TYPE B FLASHERS

Single Circuit—330-660 Watts

Equipped with a condenser and special arc eliminator. Special Heavy Alloy Contacts insure long service. Not affected by vibration.

No. 181

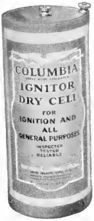
Mfrs. No.	Volts	Max. Cap. Watts	Wt. Oz.	Price Each
181	100-125	330	24	**$6.50**
121	100-125	440	24	**7.50**
182	100-125	550	24	**9.25**
123	100-125	660	24	**10.50**

Dimensions: 2⅜x6⅜x2½ inches.

For 6, 8, 32, 220 volts add 30%.

COLUMBIA DRY BATTERIES

COLUMBIA IGNITOR



Columbia Ignitor heavy duty cell is made in No. 6 size, round jackets. Square cartons can be furnished on No. 6 if desired when purchased in boxes of fifty. This dry cell is designed especially for ignition, and is particularly desirable for heavy duty.

Mfrs. No.	Price Each
6	$0.40

50 packed in wire bound boxes.

Barrel lots of 125 or multiple.

COLUMBIA GRAY LABEL

Columbia Gray Label, the low current telephone cell, made in No. 6 size only, is furnished with round jackets or square cartons. Initial shipping amperage—18 to 22 amperes. Designed especially for telephone and light drain service.

Mfrs. No.	Price Each
6	$0.40

50 packed in wire bound boxes.
Bbl. lots of 125 or multiple.

COLUMBIA HOT SHOT BATTERIES

Only Hot Shot types 1461-M, 1562-M and 1662-M are furnished in the steel case construction. Types 1462 and 1561 are supplied in fibre containers.

Mfrs. No.	Volts	Lgth. In.	Wdth. In.	Hgt. In.	Wt. Lbs. Std. Pkg.	Std. Pkg. Qty.	Price Each
1461-M	6	10⅝	2¾	7½	Box 128 Bbl. 255	12 24	$2.20
1462	6	5⅜	5⅜	7½	Box 134 Bbl. 250	12 21	2.20
1561	7½	13¼	2¾	7½	Box 167 Bbl. 225	12 15	2.60
1562-M	7½	8	5	7½	Box 115 Bbl. 260	8 18	2.60
1662-M	9	8	5⅜	7½	Box 136 Bbl. 230	8 13	3.10

STEEL CASE HOT SHOT ASSORTMENT SHS

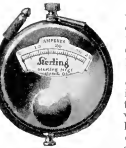
	Price Each
6 No. 1461-M Hot Shots (steel case) 2 No. 1562-M Hot Shots (steel case) 2 No. 1662-M Hot Shots (steel case)	$24.60

Approximate weight of box packed, 123 lbs.

Standard boxes or barrels must contain one type of Dry Cell or Hot Shot battery only, except in the case of SHS assortment which is standard as listed.

STERLING POCKET METERS

POCKET AMMETERS



No. 24

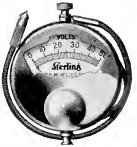
These ammeters are widely used by electricians, gas engine users, repair men, motor boat owners, door bell owners, telephone men and others. Inasmuch as a reading can only be obtained by placing the terminal at the bottom of the meter in contact with the carbon or positive battery terminal, it is obvious that the instrument also serves as a polarity indicator.

The use of multiple dry batteries has created a demand for an ammeter to register amperage in higher units. The Sterling Ammeter No. 25 has been designed for this purpose.

Mfrs. No	Reading	Price Each
24	0-35 Amp., 1 Amp. Div.	$1.00
25	0-60 Amp., 2 Amp. Div.	2.25

POCKET VOLTMETERS

Sterling Voltmeters have an essential role to fill in the testing of both dry batteries and storage batteries, the present day importance of radio batteries making them extremely useful for accurate voltage readings. They also measure the voltage of any direct current electrical circuit within the range for which they are designed.



No. 34C

Defective or broken connections, short circuits and other similar wiring troubles are easily found by testing the circuits in various places and locating the point where full voltage is not received. For the same reason as explained above for ammeters, the Sterling Voltmeter can also be used as a polarity indicator.

Mfrs No	Reading	Price Each
33	0-3 Volts (1/10 Volt Divisions)	$1.25
34	0-10 Volts (⅕ Volt Divisions)	1.25
34A	0-16 Volts (½ Volt Divisions)	1.75
*34B	0-30 Volts (1 Volt Divisions)	2.25
*34C	0-50 Volts (1 Volt Divisions)	2.75

*For testing "B" batteries.

POCKET VOLTAMMETERS

No. 44

The voltammeter—a combination of the ammeter and voltmeter in a single case—serves the purpose common to both the ammeter and voltmeter. It is invaluable for those who work with both dry and storage batteries, and for work around similar electrical circuits.

Mfrs. No	Reading	Price Each
44	0-35 Amp., 0-10 Volts (1 Amp. and ⅕ Volt Divisions)	$1.50
44A	0-35 Amp., 0-16 Volts (1 Amp. and ½ Volt Divisions)	2.00
45	0-35 Amp., 0-50 Volts (1 Amp. and 1 Volt Divisions)	4.00

EVEREADY B BATTERIES

22½ VOLT BATTERIES

NO. 763—SMALL

Horizontal. Contains 15 small dry cells; equipped with two Fahnestock spring clips. Recommended only for use with one-tube sets where 45 volts or less are used. Length, 3⅜ inches; width, 2 $\frac{1}{32}$ inches; height, 2 $\frac{9}{16}$ inches.

Mfrs. No	Volts	Wt.Oz. Each	Price Each
763	22½	13	**$1.50**

NO. 768—SPECIAL

Designed and recommended only for use in Radiola Grand and Radiola IV receiving sets.

Length, 4 $\frac{1}{16}$ inches; width, 2 $\frac{9}{16}$ inches; height, 2¾ inches.

Mfrs. No	Volts	Wt Oz. Each	Price Each
768	22½	25	**$1.90**

NO. 764—MEDIUM

This vertical type 22½ volt battery occupies practically the same small table space as the No. 763, but because of its larger cells, it has over twice the service capacity. Will supply current to as many as three tubes operating at more than 45 volts. Has two Fahnestock spring clip terminals.

Length, 3¼ inches; width, 2¾ inches; height, 5⅝ inches.

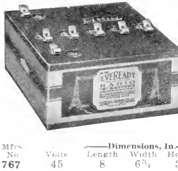
Mfrs. No	Volts	Wt.Lb. Each	Price Each
764	22½	2½	**$1.75**

NO. 766—LARGE

Equipped with six Fahnestock spring clip connectors, giving variable voltage from 16½ to 22½ volts in 1½ volt steps; ideal for receiving sets using a soft detector tube.

Mfrs. No	Volts	Dimensions, In. Length	Width	Height	Wt Lb Each	Price Each
766	22½	6¾	4⅛	3 $\frac{3}{16}$	5	**$2.00**

45 VOLT BATTERIES



NO. 767–LARGE

Has twice the number of the same large-size cells as those in No. 766. Recommended for use with sets requiring 45 or 90 volts. Also suitable for use with sets employing a UV-200 or C-300 detector.

Mfrs No	Volts	Dimensions, In. Length	Width	Height	Wt.Lb. Each	Price Each
767	45	8	6¾	3 $\frac{1}{16}$	4½	**$3.75**

EVEREADY B BATTERIES

45 VOLT BATTERIES

NO. 772—LARGE

Voltages of 22½ to 45 volts, making it especially suitable for receiving sets which do not require a tapped "B" battery. Length, 8 $\frac{3}{16}$ inches; width, 3¼ inches; height, 7⅛ inches.

Mfrs No.	V	Wt.Lb. Each	Price Each
772	45	9	**$3.75**

NO. 770—EXTRA LARGE

This heavy duty battery contains extra large radio cells making it especially suitable for use on heavy current sets and power amplifiers which impose serious overloads on "B" batteries made of smaller cells.

Mfrs. No	Volts	Dimensions, In. Length	Width	Height	Wt Lb. Each	Price Each
770	45	8 $\frac{3}{16}$	4 $\frac{7}{16}$	7 $\frac{3}{16}$	13¾	**$4.75**

NO. 771 C 4½ VOLT

This "C" battery contains three large radio cells giving 4½ volts. Three Fahnestock spring clip connectors give 1½, 3 or 4½ volts. Length, 4 inches; width, 1⅞ inches; height, 3 inches.

Mfrs. No.	Volts	Wt Oz Each	Price Each
771	4½	14	**$0.60**

EVEREADY A BATTERIES

No. 7111

Storage A Battery

NO. 7111 DRY CELL

The No. 7111 was especially developed to operate with dry cell vacuum tubes.

Will be furnished with round jackets unless square jackets are specified and with screw knurls unless Fahnestock connectors are specified.

Mfrs No	Volts	Dimens., In. Width	Height	Std. Pkg.	Pkg Wt	Price Each
7111	1½	2½	6	50	120	**$0.40**

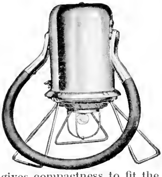
STORAGE RADIO A BATTERIES

Encased in hardwood boxes; finished in mahogany, to match finish of most radio sets; terminal posts covered with hard rubber knurled nuts.

Mfrs. No	Capacity At 1 Amp. Rate	Approx Net Wt Lb	Price Each
6860	90 Amp. Hrs.	45	**$18.00**
6880	110 Amp. Hrs.	52	**20.00**

FEDERAL ELECTRIC LANTERN

MODEL H



The product of extensive research, refinement and application to the needs of every requirement for safety, strength, light weight, swing and carry balance, with perfect grip, self-locking bail, a positive switch protected from accidental lighting, freezing or shorting, flexible folding legs and bail gives compactness to fit the coat pocket, designed on straight lines with few parts, easily accessible and changeable, not affected by rain, snow, sleet or wind and cannot go out suddenly. Used extensively by railroad men and is the most desirable portable white and bright flood light for use in garages, oil filling stations, on farms, in industrial plants by night watchmen and by campers and tourists.

The light is thrown downward and to the sides where needed. The bail fits securely into the palm of the hand. Can be carried on one arm, leaving both hands free.

Can also furnish lantern fitted with shade holder and white porcelain enameled steel shade; can be used in same holder any desired glass color hood for signaling. Prices on application.

Designed for intermittent service. Continuous burning is not necessary in a portable light. All four-cell standard 6-volt batteries may be used, with standard 6-volt, 0-16 ampere, or 5-volt, 0-15 ampere, white or ruby bulbs.

With Clear Bulb and Dry Battery

Mfrs. Model No.	Height Over All Inches	Handle Down Inches	Width Inches	Wt. Lb.	Price Each
H	14¾	9½	7	2¼	**$6.00**
		Without Bulb and Dry Battery			
H	14¾	7½	7	2¼	**5.00**

Specify on order whether plain nickel bail, or nickel bail with rubber grip is wanted.

DRY BATTERY FOR FEDERAL ELECTRIC LANTERNS

Six-volt, four-cell battery, weighs only twenty-two ounces, packed for shipment.

Mfrs. No.	No. Cells	Wt. Oz. Each	Price Each
409-C	4	22	**$0.80**

BULBS FOR FEDERAL ELECTRIC LANTERNS

Tungsten six volt, 0-16 ampere, white or red bulb. Weight, one ounce each. For use with No. 409-C dry batteries.

Cat. No.	Type Bulb	Volts	Price Each
614	Clear	6	**$0.20**
615	Ruby	6	**.40**

Tungsten 2.1 volt, 0-35 amperes, white or red bulb for use with No. 410 storage battery.

Mfrs. No	Type Bulb	Volts	Price Each
G-46	Clear	2.1	**$0.35**
G-48	Ruby	2.1	**.50**

BATTERIES AND SUPPLIES

IMPROVED SAMSON BATTERY

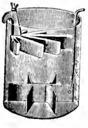
No. 2

6½x4¾x4¾

	Std. Pkg.	Price Each
Complete	50	**$3.20**
Carbon	50	**1.70**
Cover	100	**.50**
Jar	50	**.60**
Sal Ammoniac, 5 ozs.	100	**.30**
Zinc	100	**.80**
Star Fenders	100	**.16**

GRAVITY BATTERY

6x8 Inches



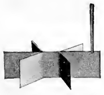
Consists of heavy glass jar, crowfoot pattern zinc and copper. Blue vitriol is not included in price of battery.

	Price Each
Cell complete	**$1.20**
Glass Jar	**.50**
Zinc	**.80**
Copper	**.17**

ZINC CROWFEET

Mfrs. No.	Size of Jar Inches	Price Each
1	6x8	**$0.80**

BATTERY COPPERS



Brush copper, No. 32 B. & S. gauge, 13 inches of No. 14 rubber covered wire for connections.

Mfrs. No.	Size of Jar Inches	Std. Pkg.	Price Each
16	6x8	500	**$0.17**

CYLINDER ZINCS

Mfrs. No.		Price Each
21	Thumb Nut Connection	**$0.20**
22	National	**.22**
23	Thumb Screw Connection	**.22**

PENCIL ZINCS

Lgth. In.	Diam. In.	Price Each
6½	⅜	**$0.10**

IMPORTED SAL AMMONIAC

In Bulk, Price Per Lb. **$0.40**
4 Oz. Packages, Price Per Pkg. **.30**

BLUE VITRIOL

In Bulk, Price Per Lb. **$0.15**

NON-BREAKABLE HYDROMETER SYRINGE

Complete, Price Each **$1.25**

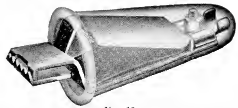
UNIVERSAL CLIPS

TEST CLIPS

No. 27

Suggested for use with test sets, with voltmeters, by telephone linemen, by meter departments, by railway signal inspectors, in college and commercial laboratories, in radio work, in electric welding, and arc burning work, on shop testing devices, and on motor and transformer test floors.

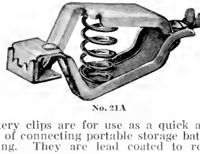
Mfrs. No.	Description	Price Each
27	Clip only, 10-amp., spread of jaws $\frac{9}{16}$ in.	$0.30
28	Clip with insulator, 10-amp.	.46
29	Insulator only, for 10-amp. size	.16
24	Clip only, 25 amp., spread of jaws 1 in.	.34
25	Clip with insulator, 25 amp.	.50
26	Insulator only, for 25-amp. size	.16
21	Clip only, 50-amp., spread of jaws $1\frac{1}{2}$ in.	.70
22	Clip with insulator, 50-amp.	1.16
23	Insulator only, for 50-amp. size	.46
11	Clip only, 100-amp., spread of jaws, 1 inch	1.00
36	Nickel plated clip only, spread of jaws $\frac{1}{2}$ in., for radio use	.10



No. 12

Mfrs. No.	Description	Price Each
12	Clip with insulator, 100-amp.	$1.46
23	Insulator only, for 100-amp. size	.46
33	Clip only, 200-amp., spread of jaws 2 in.	2.50
34	Clip with insulator, 200-amp.	4.00
35	Insulator only, for 200-amp. size	1.50

BATTERY CLIPS



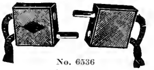
No. 21A

Battery clips are for use as a quick and ready means of connecting portable storage batteries for charging. They are lead coated to resist acid fumes.

Mfrs. No.	Description	Price Each
24A	15-amp., spread of jaws, 1 in. For Radio Batteries	$0.30
21A	Clip only, 35-amp., spread of jaws, $1\frac{1}{2}$ in. For Automobile Batteries	.40
11A	Clip only, 100-amp., spread of Jaws, 1 in. For Discharge Tests	1.10
33A	Clip only, 200-amp., spread of jaws, 2 in. For Discharge Tests	2.70

SEPARABLE CONNECTORS

RECTANGULAR CONNECTORS



No. 6536

SMALL SIZE

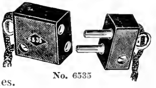
For making and breaking a circuit rapidly and as frequently as desired. Can be used on any battery circuit. Contact parts are moulded under heavy pressure in a solid block of hard composition which will hold them permanently in place.

Size $1\frac{7}{8}$x$1\frac{1}{16}$x$\frac{7}{16}$ inches.

Mfrs. No	Description	Std. Pkg.	Price Each
6536	Small Rectangular Connector	200	$0.70

MEDIUM SIZE

Will make and break a circuit using 15 amperes or less of current. For connecting portables, fans, small motors, etc.



No. 6535

Size $1\frac{7}{8}$x$1\frac{1}{4}$x$\frac{3}{4}$ inches.

Mfrs. No	Description	Std. Pkg.	Price Each
6535	Rectangular Connector	100	$0.90
6537	Plug, Only	......	.56
6538	Receptacle, Only	......	.56

LARGE SIZE

For making and breaking 25 amperes on 125 volt circuits. For experimental and demonstrative purposes, stage lighting, connecting small motors and numerous other applications.

Size $2\frac{1}{8}$x$1\frac{7}{8}$x$\frac{3}{4}$ inches.

Mfrs. No.	Description	Std. Pkg.	Price Each
6540	Large Rectangular Connector	100	$1.20
6539	Plug Only	......	.75
6543	Receptacle, Only	......	.75

MIDGET SEPARABLE CONNECTOR

SMALL SIZE

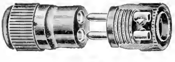
No. 6501

For primary or storage battery circuits for making and breaking circuits quickly. Screw caps on each end are made of hard composition. Used on automobiles, launches, for connecting battery electric lamp circuits, etc.

Mfrs. No.	Description	Std. Pkg.	Price Each
6501	Midget Separable Connector	250	$0.35
6480	Plug Only	......	.22
6481	Receptacle Only	......	.22

MEDIUM SIZE

Illustration shows cap broken to indicate method of connecting.



No. 6502

Mfrs. No	Description	Std. Pkg.	Price Each
6502	Midget Separable Connector	100	$0.45
6482	Plug Only	......	.28
6483	Receptacle Only	.....	.28

FLUSH MEDIUM SEPARABLE CONNECTOR

Same size and design as No. 6502, with metal ring and flange for attaching receptacle part in a permanent position. Binding posts on both receptacle and plug ends are protected with composition screw caps.

Mfrs. No	Description	Std. Pkg.	Price Each
6497	Medium Separable Connector	100	$0.75
6482	Plug Only	......	.28
6485	Receptacle Only	......	.66

MATTHEWS HOLDFAST LAMP GUARDS

Guards for brass sockets are indicated by the letter B after the numbers; for porcelain weather-proof sockets by the letters WP; collars on B guards are 1¼ inches in diameter, on WP guards 1½ inches in diameter.

Guards for Protecting New 25 and 50 Watt Mill Type Mazda Lamps in Reg. Bulb

Mfrs. No.	Size of Wire, B. W. G.	Price Per 100
MT14B	14	$70.00
MT14WP	14	70.00

Guards for Protecting 6, 8, 10, 16, 32 C. P. Carbon and 15, 25, 40, 50 and 60 Watt Lamps

114B	14	66.00
114WP	14	66.00
112B	12	96.00
112WP	12	96.00

Guards for Protecting 50 C. P. Carbon, 75 and 100 Watt, Type C, Pear Shape Mazda Lamps.

514B	14	110.00
514WP	14	110.00

Guards for Protecting 200 Watt, Type C, Pear Shape Mazda Lamps and 100 Watt Old Style Straight Side Mazda Lamps.

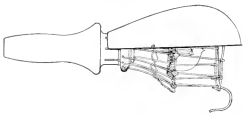
714B	14	200.00
714WP	14	200.00

MATTHEWS HOLDFAST LAMP CHANGERS

Designed for removing or replacing lamps on ceilings, side-walls and all high places where the changing of a lamp necessitates the use of a ladder.

Mfrs. No.	Size of Lamps	Wt. Each, Lbs.	Price Each
2	6 to 16 C. P. and 15 to 60 Watt Mazda and 25 and 50 Watt mill type Mazda	⅞	$12.00
3	32 to 50 C. P. Carbon and 60 to 150 Watt Mazda. Other large and odd shapes up to 5 in. diameter	1¾	14.00

MATTHEWS HOLDFAST PORTABLE LAMPS



A combination of a specially designed No. 112 Matthews Holdfast Guard with a hook, heavy aluminum weatherproof socket and a re-inforced hardwood handle. Holdfast shade can also be added if specified.

Mfrs. No.	Description	Price Per 100
4112	Lamp Guard, Socket and Handle only	$440.00
4112S	Same as above, with Matthews Holdfast Shade	500.00

MATTHEWS HANDY HOLDFAST PORTABLES

Illustration shows No. 1. These are combination of a specially designed No. MT14 Matthews Holdfast Guard with a hook. Has extra strong wood handle.

Mfrs. No.		Price Per 100
1	Including Lamp Guard, Keyless Socket, and Handle only	$420.00
2	Includes Lamp Guard, Push Key Socket and Handle only	480.00

Will be furnished with 15 or more feet of flexible non-kinking rubber covered cord and attachment plug for 30 cents per foot additional to above prices.

MATTHEWS HOLDFAST SHADES

A reflector shade for use in connection with Matthews holdfast guards.

	Price Per 100
To fit 114B, 114WP, 112B and 112WP Holdfast Lamp Guards only	$90.00

MATTHEWS HOLDFAST ADJUSTABLES

An adjustable joint which is absolutely universal and will meet every condition around the shop where an adjustable fixture is required.

	Price Per 100
Made to fit ⅜ Inch Standard Iron Pipe or ½ Inch Rod	$80.00

LAMP GUARDS

LOXON TYPE

No. 1425

Tinned wire; closed bottom; two steel hinged plates at top that snugly fit over socket bead and have locking device operated by key, which is furnished with each dozen guards. Can be furnished to fit conduit receptacles, V. V. receptacles; Unilets; Taplets, and aluminum sockets when so specified.

Mfrs. No.	Size Lamp Watts	Volt	Style Socket	Wt.,Lbs. per Gross	Price per Doz.
1420	‡25-50	110-220	Std.	29	**$6.00**
***1420A**	‡25-50	110-220	W.P.	35	**6.30**
***1420B†**	‡25-50	110-220	W.P.	35	**6.30**
1425	25-60	110	Std.	35	**6.00**
1426	40-60	220	Std.	41	**6.30**
***1427A**	25-60	110	W.P.	41	**6.00**
***1427B†**	25-60	110	W.P.	46	**6.00**
***1428A**	40-60	220	W.P.	48	**6.30**
***1428B†**	40-60	220	W.P.	48	**6.30**
2443	75	.....	Std.	48	**9.00**
2444	100	.....	Std.	56	**10.00**
***2446A**	100	.....	W.P.	57	**10.00**
***2446B†**	100	.....	W.P.	57	**10.00**
2447	200	.....	Std.	68	**12.50**
***2447A**	200	.....	W.P.	68	**12.50**
***2447B†**	200	.....	W.P.	68	**12.50**

GRIPON TYPE

Gripon Guards are the same as the Loxon except they have plain screws instead of the locking feature. Made to fit conduit receptacles, V. V. receptacles, Unilets, Taplets, and aluminum sockets, when so specified.

No. 1600

Mfrs. No.	Size Lamp Watts	Volt	Style Socket	Wt.,Lbs. per Gross	Price per Doz.
1608	‡25-50	110-220	Std.	29	**$4.00**
***1608A**	‡25-50	110-220	W.P.	35	**4.30**
1600	25-60	110	Std.	35	**4.00**
***1602A**	25-60	110	W.P.	41	**4.00**

*The letter "A" or "B" following manufacturer's number merely refers to different diameters of sockets.

Note.—All numbers followed by A, fit following sockets:

BRYANT	FREEMAN	G. E.	SIEMONS
9366	132	9366	43310
9448	155	60666	J.H.P.S.Inc.
9395	320	P. & S.	43310
43310	PAISTE	60217	60666
.....	9366	116	.....

†For No. 60666 composition and H. W. J. M. No. 1149 mica or composition sockets.

‡Mill Type.

LAMP GUARDS

LOXON REFLECTOR GUARD TYPE

No. 1443

Same as Loxon type, but with tinned, pressed steel half reflector.

Mfrs. No.	Mazda Lamp. Watts	Type Socket	Wt.,Lbs. Per Doz.	Price Per Doz.
1443	40	Brass	4½	**$9.00**
1444	40	W. P.	5	**9.00**
		Mill Type		
1400	25-50	Brass	4	**9.00**
1401	25-50	W. P.	4¼	**9.00**

CONE SHADE FOR LOXON

No. 1445 same as above, but with tinned, pressed steel 10-inch shade. For Loxon Lamp Guard.

No. 1445

Mfrs. No.	Fits Guard	Type Socket	Wt.,Lbs. Per Doz.	Price Per Doz.
1445	25-60	W.P.	6	**$5.50**

HALF CONE SHADE

No. 1555

No. 1555, with tinned, pressed steel Half Cone Shade for Loxon type Lamp Guard.

Fits Guard, 25-60.

Mfrs. No.	Type Socket	Wt.Lbs. Per Doz.	Price Per Doz.
1555	Brass	4	**$8.00**

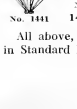
PROTECTOR—TYPE O

An open bottom guard which enablics quick and easy removal or insertion of lamps and fully protects from breakage. (These guards can be nested.)

No. 1429

Mfrs. No.	Size Lamp, Watts	Type Socket	Wt.,Lbs. Per Doz.	Price Per Doz.
1429	40–60	Std.	2½	**$4.00**
1432	40–60	W. P.	3	**4.00**

PROTECTOR—TYPE A


No. 1441

Tinned wire; closed bottom; coil spring cushion ring grips lamp; hook and loop eye fastening.

For 15 watt lamps only.

Mfrs. No.	Size Lamp, Watts	Wt.Lbs. Per Doz.	Price Per Doz.
1441	25	3	**$2.80**

All above, 1 Dozen in Unit Package, 12 Dozen in Standard Package.

PORTABLE LAMP GUARDS

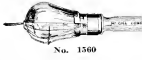
LOXON

No. 1447

With tinned wire guard and hanging hook. Two hinged steel plates snugly fit over end of the turned, black enameled wood handle. With standard brass socket; for 40 watt lamps.

Mfrs. No.	Type Socket	Length In.	Wt.Lbs. Each	Price Each
1447	Key	9	1/2	**$1.80**
1550	Keyless	9	1/2	**1.70**

LOXON REFLECTOR TYPE



No. 1560

Same as above but furnished with half shade bright tinned reflector.

Mfrs. No.	Type Socket	Length In.	Wt.Lbs. Each	Price Each
1448	Key	9	1/2	**$2.00**
1560	Key.ess	9	1/2	**1.90**

MONITOR

No. 1453

Open end; can be stood in an upright position; lamps are easily replaced. Rigid tinned wire frame with side hook brass key socket fastened to imbedded nipple on turned wood hollow handle.

Mfrs. No.	Lamp Size Watts	Length In.	Wt.Lbs. Each	Price Each
1453	40	13	7/8	**$1.70**
1454	60	13	7/8	**1.80**

LAMP CHANGERS

ADAPTABLE TYPE

No. 1

Fits any incandescent lamp up to and including 100 watts. Furnished with or without sectional steel poles as desired.

Mfrs. No.	Length In.	Wt.Lbs. Each	Price Each
1	16	1 7/8	**$6.50**

STEEL POLES

Five foot, 6 inch sections of finished steel tubing with threaded ends. Any length pole may be thus made by merely jointing sections together and extending draw string.

Price Per Section..... **$4.50**

LAMP GUARD SOCKETS

Porcelain Keyless, used in Portables Nos. 4000, 1451, 1452, 4673, 902, 903, 1000 and 3001.

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
4002	10	250	85	**$0.48**

PORTABLE LAMP GUARDS

CRESCENT

No. 1645

For use on extensions. Heavy, tinned wire frame with hook. Hollow, turned wood handle with pressed steel plate for attaching handle to guard. Takes regular 3/8 inch standard socket, but furnished without socket.

Mfrs. No.	Lamp Size Watts	Length In.	Wt.Lbs. Each	Price Each
4645	40	10 3/4	1	**$2.50**
4676	60	10 3/4	1	**2.50**

CRESCENT REFLECTOR TYPE

No. 5555

Steel wire guard with swivel hook and half shade, silver lustre finished reflector. Hollow, turned wood handle and brass socket. Guard removed by unscrewing thumb nuts on ends of ribs projecting through base plate. For 40 watt lamps.

Mfrs. No	Length In.	Wt.Lbs. Each	Price Each
5555	10 3/4	1 1/8	**$3.00**

BULLDOG

No. 4675

Adapted for any size cord and for 60 watt lamps. Bessemer steel wire ribs, hook and stamped steel ring and handle attaching plate; all copper plated. Turned hollow wood handle furnished with either key or keyless socket imbedded in handle.

Mfrs. No.	Length In.	Type Socket	Wt.Lbs. Each	Price Each
4675	10	Key	1 1/8	**$3.50**
2590	10	Keyless	1 1/8	**3.50**

DREADNAUGHT

No. 4000

Has porcelain keyless socket fitted with spring contact firmly imbedded in the hollow, turned wood handle. Heavy, steel wire guard with hook, copper plated. Guard fastened to handle by band on bottom plate. For 60 watt lamps.

Mfrs. No.	Length In.	Wt.Lbs. Each	Price Each
4000	9 3/4	1 1/8	**$3.50**

STANDARD

No. 4673

Bessemer copperized steel wire rod frame with hook; hollow turned wood handle, has porcelain keyless socket imbedded in handle. For 60 watt lamp.

Mfrs. No.	Length In.	Wt.Lbs. Each	Price Each
4673	11 1/2	1 1/8	**$3.50**

BENJAMIN PORTABLE CLUSTERS AND INDUSTRIAL CLUSTERS

CONTRACTOR'S PORTABLE CLUSTER

No. 677

Extra heavy one piece reflector of steel, rope suspension fitting, Benjamin wireless cluster with aluminum casing, and guard.

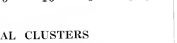
Rope suspension fitting is extra heavy, and provided with water tight stuffing box for cable. Strong iron guard clamps on head of reflector, and has loop for side line in order that fixture may be tipped to throw light at various angles.

Reflector is black paint enameled outside, white inside. Fittings and guard are heavily galvanized.

Mfrs. No.	Size of Lamp, Watts	No. of Lights	Size Reflector, In.	Std. Pkg.	Price Each
677	25,40,50,60	4	16	5	**$10.70**
678	25,40,50,60	5	16	5	**11.00**

INDUSTRIAL CLUSTERS

Less Suspension



No. 22H

Multiple cluster body with porcelain enamel steel reflector which is placed between cluster body and ceiling. A rubber gasket is used to prevent contact with metal parts.

Cluster body is brushed brass; reflector is white on both sides.

Mfrs. No.	Size of Lamp, Watts	No. of Lights	Size Reflector, In.	Std. Pkg.	Price Each
22H	25 to 100	2	15	5	**$3.40**
23H	25 to 100	3	15	5	**3.75**
24H	25 to 100	4	15	5	**4.10**
H215	Reflector only		15	5	1.60

INDUSTRIAL CLUSTERS

With Suspension

No. 015H

Multiple cluster body with porcelain enamel steel reflector, 8x8⅝ inch brass stem, 4½x3 inch canopy and crowfoot. For other stems, see another page.

Canopy and stem are brushed brass. Reflector is white inside and outside. Standard package is 5.

Mfrs. No.	Size of Lamp Watts	No. of Lights	Size Reflector, In.	Lgth. In. Less Lamps	Price Each
012H	25 to 100	2	15	11	**$4.85**
013H	25 to 100	3	15	11	**5.20**
014H	25 to 100	4	15	11	**5.55**
015H	25 to 100	5	15	11	**5.90**
016H	25 to 100	6	15	11	**6.25**
H115	Reflector only		15		**1.60**

Prices do not include wires or lamps.

FARIES METAL SHADES

With new collar lock holder. One quarter turn locks the shade.

DEEP BOWL TYPE

No. 53F

5½ Inches Deep, For 25 to 60 Watt Lamps

Mfrs. No.	Diam. In.	Std. Pkg.	Price Each
53F*	7½	48	**$1.00**
53G†	7½	36	**1.10**

5½ Inches Deep, For 25 to 75 Watt Lamps

53A*	8	36	**1.10**
53†	8	24	**1.20**

6½ Inches Deep, For 60 to 100 Watt Lamps

53C*	10	36	**1.35**
53D†	10	24	**1.50**

*Frosted Steel. †Frosted Aluminum.

PARABOLA TYPES

Swivel easily on the socket, permitting light to be thrown in any direction.

No. 37A

3 Inches Deep, For 25 to 60 Watt Lamps

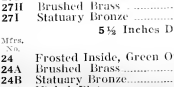
Mfrs. No.		Diam. In.	Std. Pkg.	Price Each
27A	Frosted Steel	7	36	**$0.75**
27C	Brushed Brass	7	48	**.90**
27J	Statuary Bronze	7	24	**.95**

3⅜ Inches Deep, For 40 to 75 Watt Lamps

27E	Frosted Steel	8	24	**1.15**
27H	Brushed Brass	8	24	**1.50**
27I	Statuary Bronze	8	24	**1.50**

5½ Inches Deep

Mfrs. No.		Std. Pkg.	Price Each
24	Frosted Inside, Green Outside	36	**$0.60**
24A	Brushed Brass	36	**.75**
24B	Statuary Bronze	36	**.80**
24C	Nickel Plate	24	**.80**



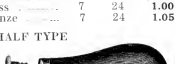
No. 32A

3½ Inches Deep, For 25 to 60 Watt Lamps

Mfrs. No.		Diam. In.	Std. Pkg.	Price Each
32A	Frosted Steel	7	48	**$0.90**
32C	Brushed Brass	7	24	**1.00**
32E	Statuary Bronze	7	24	**1.05**

HALF TYPE

Fits any lamp from 8 C. P. to 60 watt. Swivels easily on the socket, permitting light to be thrown in any direction.



No. 36A

Mfrs. No.		Std. Pkg.	Price Each
36A	Frosted Steel	48	**$0.70**
36B	Brushed Brass	36	**.80**
36D	Statuary Bronze	36	**.90**

Steel shades are green enameled outside and frosted or white enameled inside. Porcelain enameled shades are green outside and white porce'ain enamel inside.

HUBBELL REFLECTORS

Schedule C

HALF REFLECTORS

Green and White

No. 6151

Mfrs. No	Metal	Size Lamps Watts
6151	Steel	10-15
6152	Brass	10-15

B. B. and Frosted

Mfrs. No	Tin Ref. Size In. Watts	500 and over Price Per 100	100 to 499 Price Per 100	50 to 99 Price Per 100	10 to 49 Price Per 100	Less than 10 Price Each
6151	10 25-40	$19.05	$19.90	$21.55	$23.20	$0.27
6152		35.45	37.00	40.05	43.15	.50

Green and White

Mfrs. No.	Metal	Size Lamps Watts
5429	Steel	25-40-60

B. B. and Frosted

5532	Brass	25-40-60

Lacco, B. B. and Frosted

6789	Steel	25-40-60

No. 3429

5429	19.90	21.55	22.65	23.75	.26
5532	44.85	46.75	50.65	54.55	.65
6789	26.95	28.10	30.45	32.80	.40

The above reflectors are all fitted with holders for brass shell sockets. If desired for weather-proof sockets place the letter "P" after the catalog number and add 15 cents to list price.

FLAT REFLECTORS

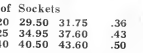
No. 5431

Green and white. Can be furnished frosted aluminum inside, instead of white, at the same price.

For Brass Shell Sockets

Mfrs. No.	Tin Ref. Size In. Watts	Size Lamps	500 and over Price Per 100	100 to 499 Price Per 100	50 to 99 Price Per 100	10 to 49 Price Per 100	Less than 10 Price Each
5431	8	15-25	$18.55	$19.35	$20.95	$22.55	$0.26
5432	10	25-40	22.80	23.80	25.80	27.75	.30
5433	12	40-60	27.50	28.70	31.10	33.45	.38

Green and white. Can be furnished frosted aluminum inside, instead of white at the same price.



No. 6751

For Weatherproof Sockets

Mfrs. No	Tin Ref. Size In. Watts	Size Lamps	500 and over Price Per 100	100 to 499 Price Per 100	50 to 99 Price Per 100	10 to 49 Price Per 100	Less than 10 Price Each
6751	8	15-25	26.10	27.20	29.50	31.75	.36
6752	10	25-40	30.90	32.25	34.95	37.60	.43
6753	12	40-60	35.85	37.40	40.50	43.60	.50

CONE REFLECTORS

No. 5440

Green and white Can be furnished frosted aluminum inside, instead of white, at the same price.

For Brass Shell Sockets

Mfrs. No.	Tin Ref. Size In. Watts	Size Lamps	500 and over Price Per 100	100 to 499 Price Per 100	50 to 99 Price Per 100	10 to 49 Price Per 100	Less than 10 Price Each
5440	8	15-25	$20.10	$21.00	$22.70	$24.45	$0.28
5441	10	25-40	23.10	24.10	26.15	28.15	.32
5442	12	40-60	29.85	31.15	33.75	36.35	.42

HUBBELL REFLECTORS

Schedule C

CONE REFLECTORS

No. 6760

Green and white. Can be furnished frosted aluminum inside, instead of white, at the same price.

For Weatherproof Sockets

Mfrs. No.	Tin Ref. Size In. Watts	Size Lamps	500 and over Price Per 100	100 to 499 Price Per 100	50 to 99 Price Per 100	10 to 49 Price Per 100	Less than 10 Price Each
6760	8	15-25	$28.60	$29.80	$32.30	$34.80	$0.40
6761	10	25-40	31.85	33.25	36.00	38.80	.44
6762	12	40-60	40.00	41.75	45.20	48.70	.55

PARABOLA REFLECTORS

With Holder at Side—Size 6½ Inch

Green and Frosted

Mfrs. No.	Metal	Size Lamps Watts
5564	Steel	25-40-60

B. B. and Frosted

5571	Brass	25-40-60

Green and Frosted

5461	Alum.	25-40-60

Lacco, B. B. and Frosted

6788	Steel	25-40-60

No. 5461

Mfrs. No.	500 and over Price Per 100	100 to 499 Price Per 100	50 to 99 Price Per 100	10 to 49 Price Per 100	Less than 10 Price Each
5564	$40.15	$42.00	$43.80	$51.10	$0.55
5571	59.10	61.75	64.50	77.60	.85
5461	44.30	46.30	48.30	56.40	.65
6788	44.20	46.15	50.00	53.85	.60

With Holder at Top

Size 6½ Inch

Green and Frosted

No. 6548

Mfrs. No	Metal	Size Lamp Watts
6094	Steel	25-40-60

B. B. and Frosted

6548	Brass	25-40-60

Green and Frosted

6549	Alum.	25-40-60

6094	40.40	43.65	45.55	53.10	.60
6548	60.40	63.15	65.90	76.85	.90
6549	46.15	48.25	50.35	58.75	.70

With Holder at 30° Angle

Size, 6½ Inch

Green and Frosted

No. 6550

Mfrs. No	Metal	Size Lamp Watts
6550	Steel	25-40-60

B. B. and Frosted

6551	Brass	25-40-60

Green and Frosted

6552	Alum.	25-40-60

6550	41.75	43.65	45.55	53.10	.60
6551	60.40	63.15	65.90	76.85	.90
6552	46.15	48.25	50.35	58.75	.70

For 6½ inch brass reflectors in polished nickel, add **$0.40** to list; in oxidized copper finish, add **$0.50** to list. All other special finishes, prices on application.

White interior furnished without extra charge. Aluminum or steel reflectors cannot be furnished in a plated finish.

The above reflectors are all fitted with holders for brass shell sockets. If desired for weather-proof sockets place the letter "P" after the catalog number and add **$0.07** to list price.

BENJAMIN ILLUMINATION DATA

HOW TO MAKE LIGHTING CALCULATIONS

For Benjamin Porcelain Enameled Steel Reflectors

A few minutes of study of the following tables and charts will enable any one to solve quickly and with a reasonable degree of accuracy, any ordinary illumination problem. General lighting is recommended in preference to individual machine or bench lighting. Therefore general lighting only is considered here.

Selecting the Type of Reflector

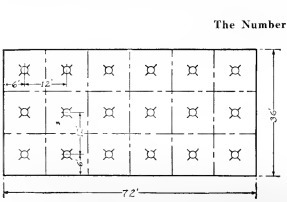
Each type of Benjamin Reflector has a character of distribution which makes it more suitable to certain applications. Their uses are briefly set forth as follows:

RLM Dome—For general illumination where it is desired to light both upright and flat surfaces; to eliminate sharp shadows by good diffusion; to avoid reflected glare from the surfaces lighted and to avoid glare by having the angle of light cut-off agree with all state lighting codes. It is suitable for mounting heights of approximately 8 to 18 feet. Angle of cut-off, 17½ degrees.

Bowl—For general illumination where the lighting of horizontal surfaces is of first importance and where a high intensity is required in a relatively small area; also where reflectors must be mounted high above working plane.

Shallow Bowl—For general illumination where the lighting requirements are of an extensive character and where eye shielding is not considered of first importance.

The Number of Lighting Units

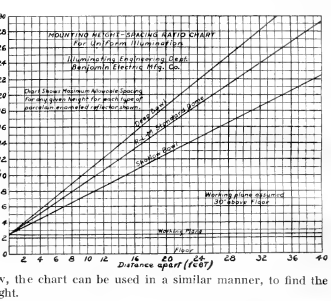


For illustration, we have a room 36x72 feet and will use the RLM Reflector. We will assume a mounting height of 10½ feet (this is usually governed by the height of the ceiling). Reference to Chart D gives us a spacing distance, on the RLM Reflector of 12 feet for this mounting height. The next step is to divide the area to be lighted, into equal parts, 12 feet square and locate one unit in the center of each division. This relationship of mounting height and spacing distance will give uniform illumination over the entire area.

In case the overhead construction of the building does not lend itself easily to this layout, it is possible to divide the area to correspond to the bays of the overhead construction. If this is done, it must be borne in mind that the spacing distance for a given mounting height should not be greater than the ratio given in Chart D and that a large number of small units is preferable to a small number of large units.

METHOD OF USING CHART D

Each of the diagonal lines drawn across Chart D represents one of the three chief types of Benjamin Reflectors. The distance between reflectors when they are properly installed is in constant proportion to the mounting height. This ratio is the same for all reflectors of any one type but the ratio of each type is different from that of the others. One purpose of Chart D is to show the proper mounting height for reflectors when the outlets are already in place and the spacing is therefore known.



For instance, if the distance between outlets is 16 feet and the RLM Standard Dome Reflector is to be used, first find the intersection of the vertical line extending from 16 feet on the scale at the bottom of the chart and the diagonal line representing the RLM Standard Dome. The horizontal line which would cross at this intersection would run to 13¾ on the scale at the left. This therefore is the proper mounting height.

Where the installation is to be entirely new, the chart can be used in a similar manner, to find the proper spacing based on a desired mounting height.

BENJAMIN ILLUMINATION DATA

HOW TO MAKE LIGHTING CALCULATIONS—CONTINUED

For Benjamin Porcelain Enameled Steel Reflectors

THE PROPER INTENSITY OF LIGHT

The unit of intensity is the foot candle. For convenience a table is set forth below which is intended as a guide. Where low and high intensities are recommended for one industry it should be understood that the low intensity is for rough work and the high intensity for the finer operations.

Industry	Foot Candles
Warehouses and wharves	3
Baths (public) and depots	3 to 4
Bowling Alleys	3 to 5
Automobile garage, armory, locker, toilet and wash rooms, packing and shipping, stock rooms	4
Soap Manufacturing	5 to 6
Box Making, wood working, (rough), Gymnasiums, meat packing	5 to 8
Paper Manufacturing, paint shops	5 to 10
Clothing, Cloaks, Suits, etc.	
Inspection, Machine Sewing	15
Cutting, Pressing	10
Candy Making, canning	8
Foundries	6 to 10
Cotton Mills	
Inspecting	12
Other operations	8
Bakeries, electric plating and electro-typing, laundries and dry cleaning, paper box manufacturing, forge shops	8
Book Making	6 to 10
Drafting Rooms, engraving	10
Leather Manufacturing and Working	
Finishing, scraping	10
Other operations	6 to 8
Silk Mills, Glove Manufacturing	6 to 12
Sheet Metal Working	
Fine Bench Work	12
Ordinary bench work	6
Woolen Mills	6 to 15
Machine Shops	
Die Making, fine bench work	15
Fine lathe work, inspecting	10
Buffers, drills, grinder, shapers, planers, ordinary lathe work	8
Saws	6
Fine wood working	10
Shoe Manufacturing	
Hand turning, ordinary machine work	8
Other operations	10
Pattern shops, billboards, courts (tennis, handball, etc.)	8
Printing	
Linotype	15
Imposing stone, typesetting	10
Other operations	8

The Proper Lamp Size

We will suppose that the room we are considering is the buffing and grinding room of the machine shop. By referring to the Table of Intensities, it is found that this class of work requires an intensity of 8 foot candles. In the room layout on the previous page the area of each division to be lighted by a unit is 144 square feet. Next referring to Chart C, locate the intersection of a line opposite 150 square feet (this figure taken for convenience in place of 144) and the line above the figure 8 foot candles. This intersection is seen to be near the curved line representing the 150-watt lamp, which is the size to adopt in this case.

METHOD OF USING CHART C

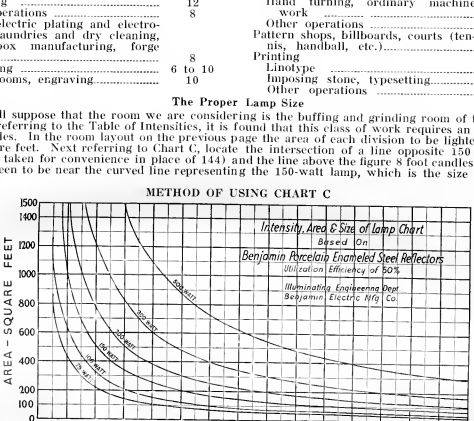


Chart C—Area, Intensity and Size of Lamp Guide

To Find Area—For instance, in designing a lighting system, it may be decided to use a 200-watt Mazda C lamp and obtain an intensity of 3 foot candles. By following the lines carrying these respective quantities to their intersection, the area which this lamp will cover at this intensity is shown as 500 square feet.

To Find Intensity—If it is desired to light 400 square feet with 200-watt lamps and the query is, what intensity will result? The answer shown by the Chart is 3¾.

To Find Size of Lamp—Suppose we wish to obtain 11 foot candles of intensity over an area of 400 square feet. What size of lamp shall be used? Looking at the chart we find that the perpendicular line above 11 foot candles intersects the horizontal line opposite 400 square feet at the curve of the 500-watt lamp.

BENJAMIN REFLECTOR SOCKETS

Porcelain Enameled Steel

Uses—Each type of reflector performs a definite serviee. See individual deseription immediately above each listing.

Reflectors—One pieee porcelain enameled steel. They are weather-proof and may be used for indoor or outdoor serviee.

Sockets—National Electrieal Code Standard. Soekets are two-pieee poreelain, keyless, easy-to-wire type with Benjamin Lamp Grip whieh prevents loosening and falling of lamps under vibration.

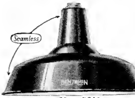
Loeking Type Soeket will be supplied with refleetors up to and including 200 watt sizes at an advanee of 40 eents each list. Key, No. 1399, at $1.00 each, list. Pull ehain socket with lamp grip will be supplied with reflectors up to and including 200 watt sizes at an advanee of 80 eents list.

Fittings—Reflectors are supported by heavy cast fitting, independent of socket, making the whole fixture uniformly strong.

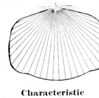
Tapping—Fitting tapped for ½ inch iron pipe regularly furnished. ¾ ineh tapping or ½ inch insulating bushing, No. 1265 for drop eord use, furnished if specified at no advanee in list.

Finish—Refleetors are Benjamin green porcelain enamel outside; white inside.

DOME REFLECTOR SOCKET—RLM STANDARD



No. 5642

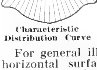


Characteristic Distribution Curve

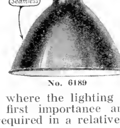
For general illumination where it is desired to light both upright and flat surfaees and to eliminate sharp shadows by good diffusion.

Mfrs. No.	Size Size of Lamp Watts	Dimen. In. Diam.	Hght.	Net Wt. Lb.Ea.	Std. Pkg.	Price Each
5640	50	12	8¼	2¼	10	**$3.20**
5641	75	12	8	2⅜	10	**3.30**
5642	100, 150	14	9¼	3¼	10	**3.50**
5643	200	16	10½	3⅝	10	**4.30**
5644	300, 500	18	12	4¼	5	**5.30**
5645	750, 1000	20	15	5⅝	5	**7.20**

BOWL REFLECTOR SOCKET



Characteristic Distribution Curve



No. 6189

For general illumination where the lighting of horizontal surfaees is of first importanee and where a high intensity is required in a relatively small area.

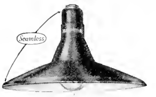
Mfrs. No.	Size Size of Lamp Watts	Dimen. In. Diam.	Hght.	Net Wt. Lb Ea.	Std. Pkg.	Price Each
6166	40, 50, 60	7	7⅜	1⅝	10	**$2.90**
6161	75	8¼	8¾	1⅞	10	**3.10**
6189	100, 150	9	9½	2	10	**3.30**
6160	200	10	10⅝	2½	10	**3.80**
6173	300, 500	12	12	3¼	10	**4.70**

Prices do not include wires or lamps.

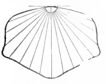
BENJAMIN REFLECTOR SOCKETS

Porcelain Enameled Steel

*SHALLOW BOWL REFLECTOR SOCKETS



No. 5423

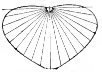


Characteristic Distribution Curve

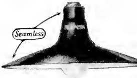
For general illumination where the lighting requirement is of an extensive eharaeter and where eye shielding is not considered of first importanee.

Mfrs. No.	Size of Lamp Watts	Dimen. In. Diam.	Hght.	Net Wt. Lb Ea.	Std Pkg.	Price Each
5437	40 to 60	12	6⅜	2¼	10	**$3.30**
5421	75	12	7½	2¼	10	**3.50**
5423	100, 150	14	8½	2¾	10	**3.80**
5425	200	16	9¾	3¼	10	**4.60**
5509	300, 500	18	11	3⅜	10	**5.70**

*FLAT CONE REFLECTOR SOCKETS



Characteristic Distribution Curve



No. 5402

For broad extensive light distribution—for such places as lumber yards, railroad terminal yards and street lighting.

Mfrs. No.	Size of Lamp Watts	Dimen. In. Diam.	Hght.	Net Wt. Lb.Ea.	Std. Pkg.	Price Each
5431	40, 50, 60	14	5	2⅜	10	**$3.30**
5401	75	14	5⅞	2½	10	**3.50**
5402	100, 150	16	6⅝	3⅛	10	**3.80**
5403	200	18	7¾	3¾	10	**4.60**

PARABOLITE

Characteristic Distribution Curves

No. 1235

Plane Thru Major Axis

Plane Thru Minor Axis

The Benjamin Parabolite is a speeially designed fixture for the illumination of aisles, platforms, and other long narrow areas indoors or outdoors.

The reflector is poreelain enameled steel, white inside, and blaek outside. The soeket is Benjamin poreelain, two-pieee, easy-to-wire type with lamp grip. The separable X type fitting is regularly tapped ½ ineh and will be tapped ¾ ineh, if specified, at no advanee in priee.

Distribution eurves are shown ahove. From these it is seen that the light is projected in a narrow stream with a low eut off on eaeh side.

Mfrs. No.	Size of Lamps Watts	Dimen. in In. Lgth.	Hght.	Net Wt. Lbs. Ea.	Std. Pkg.	Price Each
1234	60, 75	21	8⅜	3¾	10	**$8.00**
1235	100, 150	21	9¼	3⅞	10	**8.80**
1236	200	21	10⅛	4⅛	10	**9.30**

*For Construetion, finish etc., see top of opposite column.

Prices do not inelude wires or lamps.

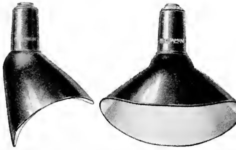
BENJAMIN ELLIPTICAL ANGLE REFLECTORS

Porcelain Enameled Steel

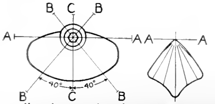
There are many places in industrial plants where lighting requirements cannot be satisfied with overhead illumination alone. Traveling eranes sometimes preclude the use of pendent fixtures. Vertical surfaces and deep recesses, such as shelving, must be better lighted.

The Benjamin Elliptical Angle Reflector satisfies perfectly these, as well as many similar cases, requiring illumination from the side.

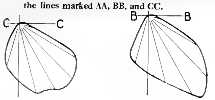
The Elliptical Angle Beflector is also a most effective unit for sign, bill and bulletin board lighting (see opposite column).



Side View — Cat. No. 5525 — Front View



Above is a top view of the Elliptical Angle Reflector. Distribution curves are made on perpendicular planes through the lines marked AA, BB, and CC.



Used Indoors For:
Craneways in Machine and Erecting Shops
Round Houses, Ash Pits
Turn Tables
Foundries with Uni-rail Systems
Power Rooms
Switch Boards
Loading Platforms
Tool Rooms
Stock Rooms
Rows of Shelving
Time Clocks
Bulletin Boards
Rooms with movable roofs
Paper making Machines
Bowling Alleys
Hand Ball Courts

Used Outdoors For:
Bill and Sign Boards
Bulletin Boards
Alley and Run Ways
Docks and Yards
Building Fronts
Tower Clocks
Loading Platforms
Construction Work
Bridges
Viaducts
Tunnels
Safety Islands at Street Crossings
Tennis Courts
Hand Ball Courts
Bathing Beaches
Athletic Fields

See opposite column for descriptions and listings.

BENJAMIN ELLIPTICAL ANGLE REFLECTORS

Porcelain Enameled Steel

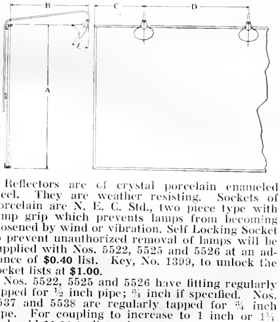
Imposing buildings, large structures, and other contrasts clamor for recognition during the day. The attention value of the best billboard, poster or sign is lessened because of these. At night, however, all lose their prominence. If the message is well illuminated it becomes a better advertisement by night than by day. It then works day and night. The darkness "stands" it out in bold relief.

Benjamin Elliptical Angle Reflectors, in addition to the usual flux of light cast directly in front of the reflectors, direct a wide distribution horizontally. Illumination is thus built up "in between" the units, where it would otherwise be weak. This gives an even distribution over the entire area.

The letters of the table indicating dimensions, refer to corresponding letters in the diagram below. This is a safe guide for use when installing Benjamin Elliptical Angle Reflectors.

Table of Spacing Distances For Sign Board Lighting

Mfrs. No.	Size of Lamp, Watts	A Height of Board Feet	B Distance Out Feet	C Distance From End Feet	D Distance Apart Feet	E Angle From Vertical
5522	75	2–4	3	2½	5	17°
5525	100	5–6	4	3	6	17°
5525	150	7–8	4½	3¼	6½	17°
5526	200	9–12	5½	4	8	20°
5537	300	13–16	6½	5	10	20°
5537	500	17–21	9	6½	13	20°
5538	750	22–25	12	8½	17	20°
5538	1000	26–30	15	10	20	20°



Reflectors are of crystal porcelain enameled steel. They are weather resisting. Sockets of porcelain are N. E. C. Std., two piece type with lamp grip which prevents lamps from becoming loosened by wind or vibration. Self Locking Socket to prevent unauthorized removal of lamps will be supplied with Nos. 5522, 5525 and 5526 at an advance of **$0.40** list. Key, No. 1399, to unlock the socket lists at **$1.00.**

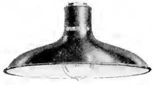
Nos. 5522, 5525 and 5526 have fitting regularly tapped for ½ inch pipe; ¾ inch if specified. Nos. 5537 and 5538 are regularly tapped for ¾ inch pipe. For coupling to increase to 1 inch or 1¼ inch add **$0.20** to list price.

Mfrs. No.	Size of Lamp, Watts	Dimen. in Inches Diameter	Height	Net Wt. Lbs., Ea.	Std. Pkg.	Price Each
5522	60. 75	8⅞x13¼	12⅜	2¾	10	**$4.20**
5525	100, 150	8⅞x13¼	14	3	10	**4.20**
5526	200	11⅛x16⅜	16½	3⅝	10	**5.40**
5537	300, 500	13⅞x19⅞	19⅝	3¾	5	**8.70**
5538	750, 1000	13⅞x19⅞	21⅜	4⅛	5	**9.00**

Prices do not include wires or lamps.

BENJAMIN REFLECTORS

HEAVY DUTY CAST IRON REFLECTOR



No. 5602

Complete fixture includes cast iron reflector, special X type fitting, tapped ½ in. and socket with lamp grip. Reflector only less fitting and socket lists as $3.60. Price does not include wires or lamps. Finish is green porcelain enamel outside, white inside.

Mfrs. No	Size of Lamp Watts	Diam., In.	Std Pkg.	Net Wt. Lbs., Ea.	Price Each
5602	25–75	12	10	6¼	**$4.65**

VIADUCT FIXTURE

Designed particularly for side installation and by reason of its wide angle of light distribution, this Benjamin unit is used extensively for the lighting of railroad subways, viaducts, trestles, etc., where overhead lighting is not feasible. For interior industrial lighting requiring light from the side and for sign and bill board lighting, see Benjamin Elliptical Angle Reflectors.

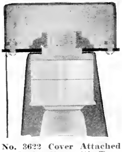
No. 5560

Construction—Symmetrical angle reflector of porcelain enameled steel, X type separable fitting and two-piece easy-to-wire porcelain socket with Benjamin Lamp Grip. Fitting tapped ½ inch regularly furnished. For tinned wire guard No. 1385 add $2.00 list.

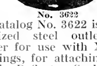
Finish—Black porcelain enamel outside; white inside.

Mfrs. No	Size of Lamp Watts	Diam. In	Std Pkg.	Net Wt., Lbs., Ea.	Price Each
5560	75, 100, 150	11⅜	10	3¼	**$4.70**

OUTLET BOX COVER



No. 3622 Cover Attached to Outlet Box with Type X Fitting and Benjamin Reflector Socket



No. 3622

Catalog No. 3622 is a galvanized steel outlet box cover for use with X Type Fittings, for attaching Benjamin Reflector Sockets direct to the conduit box. The cover is placed between reflector and top flange, and is provided with four bayonet slots which slip over screws on box. No other fittings are necessary.

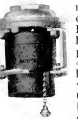
Mfrs. No	Size of Outlet Box, In.	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3622	4	10	10	2¾	**$0.25**

BENJAMIN REFLECTOR FITTINGS

SOCKETS WITH FITTINGS FOR BENJAMIN REFLECTOR SOCKETS

N. E. C. Standard

No. 4651



No. 4661

Used with Benjamin Reflector Sockets and Hooded Type Fixtures; and, listed here as replacement parts. Sockets Nos. 4651, 4657, and 4661 below are equipped with Benjamin Lamp Grip, which prevents loosening and falling of lamps under vibration.

When ordering, to insure that the proper fitting is supplied it will be necessary to give Mfrs. No. or description of fixture.

Mfrs. No.	Size Tapped In.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Keyless Socket, Medium Base Porcelain—660 Watts, 600 Volts					
4651	½	Socket with X Type Fitting	10	8½	**$1.05**
Keyless Socket, Mogul Base Porcelain—1500 Watts, 600 Volts					
4657	½	Socket with X Type Fitting	10	10½	**1.50**
Pull Chain Socket, Medium Base Molded Composition—660 Watts, 250 Volts					
4661	½	Socket with stirrup and X Type Fitting	10	6½	**1.85**

KEYLESS SOCKET—TWO-PIECE

Medium Base—660 Watts, 600 Volts

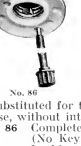
Two-piece porcelain socket No. 88 is for medium screw base reflector sockets and hood type fixtures. Binding screws are accessible for easy wiring. The separable and easy wiring features make it desirable wherever a rugged, highly insulated socket should be used. Socket has flat base. Screws are spaced 1¾ inches on centers.

No. 88

Mfrs. No.	Description	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg	Price Each
88	With Lamp Grip	10	10	4¼	**$0.60**

LOCKING SOCKET, TWO-PIECE

Medium Base—660 Watts, 600 Volts



No. 86

For the prevention of theft. Benjamin two-piece locking socket No. 86 accommodates medium base lamps and locks them in place automatically without the use of key. The latter is needed only when a lamp must be withdrawn for any reason.

The Locking Device is pushed out of the way when lamp is screwed into socket but any attempt to reverse the action causes the locking arrangement to grip the lamp base. No. 586 may be substituted for the body of No. 88 Sockets now in use, without interference with the wiring.

86	Complete Socket (No Key)	10	10	4½	**$1.00**
586	Locking Body	10	10	3	**.80**
1399	Key Only	....	1	⅛	**1.00**

X TYPE FITTING

Illustrated as the upper part of No. 4651 above.

Mfrs. No	Description	Size Tapped In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4653	For Socket Nos. 4651, 4657, 4661	½	10	4¼	**$0.45**

BENJAMIN TYPE RR THREADED FIXTURES

Where dirty or smoky atmospheric conditions make the frequent and thorough cleaning of reflectors necessary, Type RR Fixtures make the work less difficult and hazardous. Without the use of tools, reflectors may be removed and given a thorough washing. They are replaced just as easily. Every threaded reflector will fit any threaded hood in the Benjamin Type RR line.

Construction—Hoods are of two types. One is pressed steel, porcelain enameled; the other is a casting. Both are threaded to take all type RR reflectors listed in opposite column. The following applies to either type of hood.

Standard Tapping is for ½ inch iron pipe stem, but ¾ inch will be supplied without advance in list price. Two-piece, easy to wire keyless socket with lamp grip or locking socket, for prevention of lamp theft, are furnished as listed below. Locking socket key, No. 1399, lists at $1.00 each. Listings with locking socket do not include key.

Reflectors are porcelain enameled with screw thread to accommodate all hoods listed below.

Finish—Pressed steel hoods are green porcelain enamel; cast hoods are green paint enameled. Reflectors are green porcelain enamel outside; white inside.

Important—All Reflectors and hoods on this page are interchangeable; for this reason, they are listed separately. When ordering complete fixtures, specify the catalog number of both the reflector and hood desired.

Cut out of No. 26001 Pendent Hood showing method of attaching reflector

No. 26030

No. 26003 Showing key for Lamp Lock inserted. (Not necessary to remove reflector to insert key).

TYPE RR HOODS WITH SOCKETS

Hoods With Medium Base Socket

Mfrs. No.	Description	Std. Pkg.	Net Wt., Lbs., Ea.	Price Each
***26001**	With Keyless Socket	5	2¼	**$2.30**
***26003**	With Locking Socket	5	2¼	**2.70**
†**26030**	With Keyless Socket	5	1¼	**1.95**
†**26033**	With Locking Socket	5	1¼	**2.35**

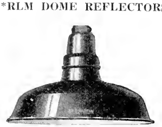
Hoods With Mogul Base Socket

Mfrs. No.	Description	Std. Pkg.	Net Wt., Lbs., Ea.	Price Each
***26005**	With Keyless Socket	5	2½	**2.70**
†**26035**	With Keyless Socket	5	1½	**2.35**

*Cast Hood, Paint Enameled.
†Steel Hood, Porcelain Enameled.
Prices are for hoods and sockets only.

BENJAMIN TYPE RR THREADED FIXTURES

*RLM DOME REFLECTORS



No. 26014 Reflector and 26001 Hood

No. 26014

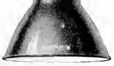
For general illumination where it is desired to light both upright and flat surfaces; to eliminate sharp shadows by good diffusion; to avoid reflected glare from the surfaces lighted and to avoid glare by having the angle of light cut-off agree with all state lighting codes.

Mfrs. No.	Size of Lamp Watts	Dimen. Inches Diam.	Dimen. Inches Hght.	Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
26012	75	12	5¼	5	1⅜	**$2.10**
26014	100, 150	14	6½	5	2⅛	**2.40**
26016	200	16	7⅝	5	2⅝	**2.80**
26018	300, 500	18	9¼	5	3¼	**3.80**
26020	750, 1000	20	12¼	5	4¼	**5.80**

Prices are for reflectors only.

*BOWL REFLECTORS

For general illumination where the lighting of horizontal surfaces is of first importance and where a high intensity is required in a relatively small area.



No. 26109

Mfrs. No.	Size of Lamp Watts	Dimen. Inches Diam.	Dimen. Inches Hght.	Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
26108	75	8¼	5⅞	5	¾	**$1.80**
26109	100, 150	9	6¾	5	⅞	**2.00**
26110	200	10	7¾	5	1¼	**2.40**

Prices are for reflectors only.

*SYMMETRICAL ANGLE REFLECTORS

No. 26212

For illuminating places where the light must come from the side.

Mfrs. No.	Size of Lamp Watts	Dimen., In. Diam.	Dimen., In. Hght.	Net Wt. Lbs., Ea.	Price Each
26210	100, 150, 200	10	7¼	1	**$2.75**
26212	300, 500	12	13	1¾	**4.55**
26214	750, 1000	14	16½	2¾	**6.25**

Prices are for Reflectors only. Std. Pkg., 5.

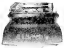
***See description, finish, etc., at top of opposite column.**

BENJAMIN REFLECTORS

SHADE HOLDER REFLECTORS

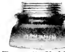
Benjamin Shade Holder Reflectors are for use where it is desired to attach reflectors to existing fixture equipment already installed. The strong rigidly attached Benjamin holders, furnished with these reflectors, have two principal advantages—1. They place the reflector in the proper position with relation to the lamp, giving correct light distribution. 2. They impart that strength and permanency to the reflector, necessary for a satisfactory and lasting job.

MADE WITH FIVE TYPES OF HOLDERS



Type B Holder

Type P Holder



Type S Holder

Type N Neck

Type A Holder

Type B Shade Holder Reflector is designed for attaching to any standard brass shell socket. This socket is the one commonly found in existing interior lighting installations.

Type N Shade Holder Reflector is fitted with a neck so shaped as to fit into any standard 2¼ inch shade holder.

Type P Shade Holder Reflector is equipped with a holder which will fit any standard porcelain socket.

Type S Shade Holder Reflector has a screw threaded holder designed to fit Benco Sockets and Type S Outlet Box fittings.

Type A Shade Holder Reflector has Benox Threaded Holder which attaches to Benox Sockets and Units.

Finish—Benjamin green porcelain enamel outside; white inside.

DOME SHADE HOLDER REFLECTORS

Reflector and Lamp Manufacturers Standard

No. 14100N

Characteristic Distribution Curve

For general illumination where it is desired to light both upright and flat surfaces; to eliminate sharp shadows by good diffusion; to avoid reflected glare from the surfaces lighted and to avoid direct glare by having the angle of light cut-off agree with all state lighting codes.

With Type B Holder for Brass Shell Sockets

Mfrs. No.	Size of Lamp Watts	Diam. In.	Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
14050B	50	12	10	1⅜	$1.95
14075B	75	12	10	1⅜	2.05
14100B	100, 150	14	10	2⅛	2.35
14200B	200	16	10	2½	2.75

See Next Column for Additional Listings

BENJAMIN REFLECTORS

DOME SHADE HOLDER REFLECTORS

Reflector and Lamp Manufacturer's Standard

For description see bottom of opposite column

Mfrs. No.	Size of Lamp Watts	Diam. In.	Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
With Type N Neck for Standard 2¼-Inch Shade Holders					
14050N	50	12	10	1⅜	$1.80
14075N	75	12	10	1⅜	1.90
14100N	100, 150	14	10	2⅛	2.20
14200N	200	16	10	2½	2.60
With Type P Holder for Porcelain Sockets					
14050P	50	12	10	1⅜	2.00
14075P	75	12	10	1⅜	2.10
14100P	100, 150	14	10	2⅛	2.40
14200P	200	16	10	2½	2.80
With Type S Holder for Benco Screw Threaded Sockets and Fittings					
14050S	50	12	10	1⅜	1.95
14075S	75	12	10	1⅜	2.05
14100S	100, 150	14	10	2⅛	2.35
14200S	200	16	10	2½	2.75
With Type A Holder for Benox Threaded Sockets and Fittings					
14050A	50	12	10	1⅜	2.00
14075A	75	12	10	1⅜	2.10
14100A	100, 150	14	10	2⅛	2.40
14200A	200	16	10	2½	2.80

BOWL SHADE HOLDER REFLECTORS

No. 12075N

Characteristic Distribution Curve

For general illumination where the lighting of flat surfaces is of first importance and where a high intensity is required in a relatively small area.

Mfrs. No.	Size of Lamp Watts	Diam. In.	Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
With Type B Holder for Brass Shell Sockets					
*12050B	25, 50	5	10	¾	$1.10
†12040B	25, 50	6	10	¾	1.55
12060B	40, 50, 60	7	10	¾	1.65
12075B	75	8¼	10	⅞	1.75
12100B	100, 150	9	10	⅞	1.95
12200B	200	10	10	1	2.35
With Type N Neck for Standard 2¼ Inch Shade Holders					
*12050N	25, 50	5	10	¾	.95
†12040N	25, 50	6	10	¾	1.40
12060N	40, 50, 60	7	10	¾	1.50
12075N	75	8¼	10	⅞	1.60
12100N	100, 150	9	10	⅞	1.80
12200N	200	10	10	1	2.20
With Type P Holder for Porcelain Sockets					
12060P	40, 50, 60	7	10	¾	1.70
12075P	75	8¼	10	⅞	1.80
12100P	100, 150	9	10	⅞	2.00
12200P	200	10	10	1	2.40
With Type S Holder for Benco Screw Threaded Sockets and Fixtures					
*12050S	25, 50	5	10	¾	1.10
†12040S	25, 50	6	10	¾	1.55
12060S	40, 50, 60	7	10	¾	1.65
12075S	75	8¼	10	⅞	1.75
12100S	100, 150	9	10	⅞	1.95
12200S	200	10	10	1	2.35
With Type A Holder for Benox Threaded Sockets and Fittings					
12060A	40, 50, 60	7	10	¾	1.70
12075A	75	8¼	10	⅞	1.80
12100A	100, 150	9	10	⅞	2.00
12200A	200	10	10	1	2.40

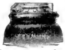
*For use with 25 and 50 Watt Mill Type Lamps.
†For small Mazda B Type, also Mill Type Lamps.

BENJAMIN REFLECTORS

SHADE HOLDER REFLECTORS

Benjamin Shade Holder Reflectors are for use where it is desired to attach reflectors to existing fixture equipment already installed. The strong, rigidly attached Benjamin Holders, furnished with these reflectors, have two principal advantages—1. They place the reflector in the proper position, with relation to the lamp, giving correct light distribution. 2. They impart that strength and permanency to the reflector, necessary for a satsfactory and lasting job.

MADE WITH FIVE TYPES OF HOLDERS


Type B Holder

Type S Holder

Type P Holder

Type N Neck

Type A Holder

Type B Shade Holder Reflector is designed for attaching to any standard brass shell socket. This socket is the one commonly found in existing interior lighting installations.

Type N Shade Holder Reflector is fitted with a neck so shaped as to fit into any standard 2¼ inch shade holder.

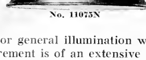
Type P Shade Holder Reflector is equipped with a holder which will fit any standard porcelain socket.

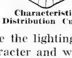
Type S Shade Holder Reflector has a screw threaded holder designed to fit Benco Sockets and Type S Outlet Box Fittings.

Type A Shade Holder Reflector has Benox Threaded Holder which attaches to Benox Sockets and units.

Finish—Benjamin green porcelain enamel outside; white inside.

SHALLOW BOWL SHADE HOLDER REFLECTORS


No. 11075N


Characteristic Distribution Curve

For general illumination where the lighting reqiurement is of an extensive character and where eye shielding is not considered of first importance.

See Next Column for Listings.

BENJAMIN REFLECTORS

SHALLOW BOWL SHADE HOLDER REFLECTORS

For Description See Bottom of Opposite Column

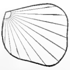
With Type B Holder for Brass Shell Sockets

Mfrs. No.	Size of Lamps Watts	Diam. In.	Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
*11050B	25, 40, 50	10	10	⅜	$1.40
11060B	50, 60	12	10	1⅛	1.60
11075B	75	12	10	1¼	1.85
11100B	100, 150	15	10	1½	2.65
With Type N Neck for Standard 2¼-Inch Shade Holder					
*11050N	25, 40, 50	10	10	⅜	1.25
11060N	50, 60	12	10	1⅛	1.45
11075N	75	12	10	1¼	1.70
11100N	100, 150	15	10	1½	2.50
With Type P Holder for Porcelain Sockets					
*11050P	25, 40, 50	10	10	⅜	1.45
11060P	50, 60	12	10	1⅛	1.65
11075P	75	12	10	1¼	1.90
11100P	100, 150	15	10	1½	2.70
With Type S Holder for Benco Screw Thread Sockets and Fixtures					
*11050S	25, 40, 50	10	10	⅜	1.40
11060S	50, 60	12	10	1⅛	1.60
11075S	75	12	10	1¼	1.85
11100S	100, 150	15	10	1½	2.65

*For use also with 25 and 50 Watt Mill Type Lamps.

ANGLE SHADE HOLDER REFLECTORS

No. 15075N


Characteristic Distribution Curve

For illuminating places where the light must come from the side.

See Benjamin Elliptical Angle Reflectors.

With Type B Holder for Brass Shell Sockets

Mfrs. No	Size of Lamps Watts	Diam. In.	Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
*15040B	25, 40, 50	7	10	⅜	$1.65
15075B	60, 75	8	10	⅝	2.05
15100B	100, 150, 200	10	10	1	2.65
With Type N Neck for Standard 2¼-Inch Shade Holders					
*15040N	25, 40, 50	7	10	⅜	1.50
15075N	60, 75	8	10	⅝	1.90
15100N	100, 150, 200	10	10	1	2.50
With Type P Holder for Porcelain Sockets					
*15040P	25, 40, 50	7	10	⅜	1.70
15075P	60, 75	8	10	⅝	2.10
15100P	100, 150, 200	10	10	1	2.70
With Type S Holder for Benco Screw Thread Sockets and Fixtures					
*15040S	25, 40, 50	7	10	⅜	1.65
15075S	60, 75	8	10	⅝	2.05
15100S	100, 150, 200	10	10	1	2.65
With Type A Holder for Ben-ox Threaded Sockets and Fittings					
*15040A	25, 40. 50	7	10	⅜	1.70
15075A	60, 75	8	10	⅝	2.10
15100A	100, 150, 200	10	10	1	2.70

*For use also with 25 and 50 Watt Mill Type Lamps.

BENJAMIN MISCELLANEOUS REFLECTORS

FLAT CONE REFLECTORS

No. H515

Benjamin standard finished, porcelain enameled steel reflectors, green outside, white inside, with heel to fit standard shade holders.

Mfrs. No.	Size Reflector In.	Size Fitter In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
H510	10	2¼	10	6	**$0.90**
H512	12	2¼	10	10	**1.15**
H515	15	3¼	10	12	**1.65**

SHALLOW BOWL REFLECTORS

Benjamin standard finished, porcelain enameled steel reflectors, green outside, white inside, with heel to fit standard shade holders.

No. H410

Mfrs. No.	Size Reflector In.	Size Fitter In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
H410	10	2¼	10	7	**.95**
H412	12	2¼	10	13	**1.15**
H414	14	2¼	10	15	**1.50**
H416	16	3¼	10	19	**1.90**

FLAT CONE REFLECTORS

No. H15

Benjamin standard finished, porcelain enameled steel reflectors, green outside, white inside, and tapped for ½ inch iron pipe stem.

Mfrs. No.	Size Reflector In.	Size Tapped In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
H10	10	½	10	7	**$1.00**
H12	12	½	10	12	**1.25**
H15	15	½	10	16	**1.65**

BENJAMIN SEWING MACHINE REFLECTOR

With Holder for Brass Shell Sockets

No. 31002B

Benjamin Sewing Machine Reflector is used for localized lighting in connection with power sewing machines. Light is directed right where it is needed. Usually it is best to attach the reflector to a Benjamin Angle Socket, which in turn is supported by a ⅜ inch conduit that is held in a horizontal position by whatever supporting fixture the particular conditions necessitate. Reflectors are steel with green outside finish. No. 31002B is paint enameled with aluminum inside finish; No. 31012B is porcelain enameled with white inside finish.

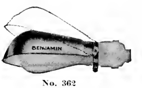
Mfrs No.	Size of Lamp Watts	Dimen., In. Diam.	Dimen., In. Height	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
31002B	10 to 20*	3⅝	4	10	2½	**$0.60**
31012B	10 to 20*	3⅝	4	10	2½	**.90**

*Also 25 Watt Mill Type Lamps.

BENJAMIN WINDOW AND SHOW CASE REFLECTORS

*PEAR SHAPED HALF SHADES

Hinged Type



No. 362
(Half Shade only)

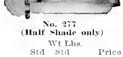
They take up little room in a window or case, but distribute the light effectively upon the merchandise. Shades take Mazda B lamps up to 40 watts. Inside aluminized; outside as indicated in listing.

Mfrs. No.	Description	Std. Pkg.	Wt.Lbs. Std. Pkg.	Price Each
362	Brushed Brass	10	2	**$0.80**
364	Brass, Polished Nickel	10	2	**.95**
365	Steel, Green Enameled	10	1¾	**.45**
365P	Steel, Green Enameled, for porcelain Sockets	10	1¾	**.80**

*TUBULAR HALF SHADES

Hinged Type

Have all advantages mentioned above but are for use with 6-inch tubular lamp. Inside is aluminized; outside as indicated in listing.



No. 277
(Half Shade only)

Mfrs. No	Description	Std Pkg.	Wt Lbs. Std Pkg.	Price Each
277	Polished Nickel	10	2¼	**$0.80**
278	Steel, Green Enameled	10	2	**.50**

*TUBULAR REFLECTORS—RIGID TYPE

For Two 6 Inch Tubular Lamps

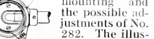
No. 282
(Reflector only)

This shade is 14 in. in length and has clamps to take two 6-in. tubular lamps. Finish is polished nickel.

Mfrs. No	Description	Std. Pkg.	Wt Lbs. Std Pkg.	Price Each
282	Slotted	10	5	**$2.00**

For One 12 Inch Tubular Lamp

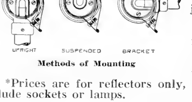
Shade is 14 in. long and takes one 12-inch tubular lamp. Finish is polished nickel.



No. 31
(Reflector only)

Mfrs. No.	Description	Std. Pkg.	Wt Lbs Std. Pkg.	Price Each
31	Not Slotted	10	3¾	**$2.00**

Positions of Mounting



Methods of Mounting

These diagrams show positions of mounting and the possible adjustments of No. 282. The illustration of upright mounting also shows the socket position with No. 31.

*Prices are for reflectors only, and do not include sockets or lamps.

BENJAMIN HAND PORTABLES AND FIXTURE GUARDS

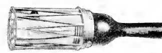
FIBRE HAND PORTABLE

No. 163P

Convenient for repair work around automobiles, batteries and switchboards where a portable of all insulating material will prevent accidental short circuits or shocks. Has black wooden handle and removable libre guard with movable fibre hook attached which permits hanging light conveniently, leaving both hands free for the work. Fibre half shade inside guard shields the eyes. Lamps not furnished, but standard 50 watt, or mill type lamps may be used.

Mfrs. No	Description	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
163P	Fibre portable, with hook	10	18	**$3.25**
164P	Fibre guard only, with hook	10	1½	**2.00**

VAPOR PROOF HAND PORTABLE



No. 259VP

This portable light is handy for use in cramped places and also a safe light in the presence of dangerous gases and vapors. Listed and passed by Underwriter's Laboratories, Inc. A 6 inch, 25 to 60 watt tubular lamp is protected by a removable, galvanized metal guard with hinged hook, and vapor proof globe. Wooden handle is black and is furnished with stuffing gland. Vapor proof globe only lists at 50 cents each.

Mfrs. No.	Description	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
259VP	With Stuffing Gland in handle	10	18	**$3.80**
261VP	Less Stuffing Gland in handle	10	17	**3.40**

OUTLET BOX LAMP GUARD

No. 1400

Particularly adapted for low ceilings, side walls, foot lights, etc., where lamps are used in outlet boxes and need protection. Fitted with supporting screw holes at base to correspond to those in outlet box cover. Base slotted to fit either 3¼ or 4 inch boxes, and will take 60 to 75 watt lamps. Heavily tinned after parts are welded.

Mfrs. No	Diam. In.	Depth In.	Std. Pkg.	Net Wt. Lbs.Ea.	Price Each
1400	4	5¾	10	½	**$0.90**

ELLIPTICAL ANGLE REFLECTOR GUARDS

These are special heavy steel wire guards made to fit Benjamin Elliptical Angle Reflectors. Guards are tinned after welding; Fittings, galvanized.

No. 1320

Mfrs. No.	For Reflector Nos.	Std. Pkg.	Net Wt. Lbs. Ea.	Price Each
1320	5522, 5525	10	¼	**$1.25**
1321	5526	10	¾	**1.50**
1322	5537, 5538	10	1¼	**2.00**

Prices do not include reflectors.

BENJAMIN FIXTURE GUARDS

LOCKING PENDENT GUARDS

No. 1386

Fit Benjamin porceiain enameled rellectors and reflector fixtures. Benjamin Gas and Vapor Proof Fixtures, when equipped with these guards, afford a high degree of protection. Guards have a grooved band and eye-bolt for attaching to bead of reflector. A locknut on bolt for fastening ground wire protects lamps against static currents. Diameter given is that of reflector which the guard fits. For padlock with two keys add 65 cents list.

Guards are tinned after welding; Fittings, galvanized.

Mfrs. No	Diam. In.	Depth In.	Std. Pkg.	Price Each
1378	7	1¼	10	**$1.75**
1380	8	1½	10	**1.80**
1381	8¼	1½	10	**1.80**
1382	9	1¾	10	**1.85**
1383	10	2¾	10	**1.90**
1385	11⅜	2	10	**2.00**
1386	12	2¾	10	**2.00**
1388	14	4	10	**2.15**
1390	15	6¾	10	**2.50**
1392	16	5	10	**2.70**
1394	18	5¾	10	**3.00**
1396	20	7	10	**3.50**

LOCKING CEILING GUARDS

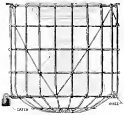
Fitted with hinge which attaches to ceiling with wood screws and a fastening plate opposite the hinge, also attached with screws. When guard is in position, screws are inaccessible. For brass padlock with two keys add 65 cents to list.

No. 1356

Wire parts are tinned; fittings, galvanized.

Mfrs. No	Diam. In.	Depth In.	Std. Pkg.	Price Each
1350	10	7	10	**$1.60**
1352	12	8	10	**2.00**
1354	14	9	10	**2.50**
1356	16	6¾	10	**2.80**
1358	18	8¾	10	**3.50**
1360	20	11	10	**4.00**

TWO-PIECE LOCKING CEILING GUARDS



No. 1366

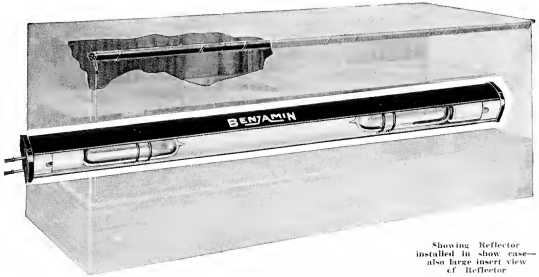
Fitted with strong cylindrical upper guard which ma, be attached to ceiling with three or more screws, and a shallow portion hinged to it at the bottom. For brass padlock, with two keys, add 65 cents to list.

Wire parts are tinned; fittings galvanized.

Mfrs. No.	Dimens., Inches: Outside Diam. top	Dimens., Inches: Opening Diam. Bot.	Dimens., Inches: Height Overall	Std. Pkg.	Price Each
1362	13¼	10½	9¾	10	**$3.00**
1366	13½	10½	13¾	10	**3.50**
1370	16½	13½	16	10	**4.50**
1371	18¼	15½	19½	10	**4.75**
1372	20½	17½	17¾	10	**5.00**
1374	20⅞	17½	21¾	10	**6.00**
1375	24¼	21½	22½	10	**7.00**

Prices are for guards only.

BENJAMIN SHOW CASE FIXTURES
FOR WOOD FRAME OR ALL GLASS CASES

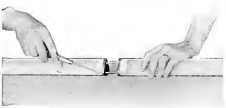


Showing Reflector installed in show case—also large insert view of Reflector

Methods of Installation

Brackets mounted on all glass case

Brackets mounted on wood frame case



Reflectors being joined together electrically and mechanically by tightening two machine screws.

Connecting Stem and end section electrically

The best arrangement of merchandise is handicapped unless it is properly illuminated. Benjamin Show Case Reflectors give the goods that attractiveness which is needed to stimulate the buying impulse. They reflect an even light distribution and are inconspicuous in the case. Benjamin Show Case Fixtures are of the sectional type and are extremely easy to wire. In fact, the sections are rigidly joined together, electrically and mechanically by tightening two screws.

Simple methods of installation for both wood frame and glass cases are more clearly illustrated on leaflet packed with each reflector.

Standard 16 inch section takes two 6 inch tubular Edison base lamps.

Standard 22 inch section takes two 6 inch or one 6 inch and one 12 inch tubular Edison base lamps.

Standard 30 inch section takes two 6 inch or two 12 inch tubular Edison base lamps.

Special length sections occasionally desired to fill out a combination of standard sections for unusual length requirements, list as follows:

10 to 15 inch sections, one socket..... **$5.00**

Note.—10 to 15 inch sections for dead end only and are not wired through.

17 to 36 inches, two sockets..... **6.50**

Reflectors:—Width 1¾ inches. Inside finish, aluminum; outside, black. Polished nickel outside finish on brass, 33⅓% over list prices.

Mfrs. No.	Description	Std. Pkg.	Wt. Lbs. Each	Price Each
4355	16 in. section only, wired	5	1¼	**$4.50**
4356	30 in. section only, wired	5	1¾	**5.35**
4357	22 in. section only, wired	5	1½	**4.70**
4360	29 in. Stem, Flange and Bushing only.....	5	1	**1.85**

Prices do not include lamps; stem assembly is not wired.

BENJAMIN DUST TIGHT AND MOISTURE PROOF FIXTURES

DUST TIGHT DROP CORD FIXTURES

For Mill Type Lamps Only**

National Electrical Code Standard

No. 659

No. 659 is a dust tight fixture, especially for drop cord work in mills, elevators, granaries, etc. It affords a high degree of protection by reason of the substantial construction and heavy screw globe which encloses the lamp.

Hood is of copper; screw globe is heavy clear glass. Porcelain bushing for drop cord has $\frac{13}{32}$ inch cord opening. Ample space is provided for cord knotting. Finish of hood is natural copper.

Mfrs. No.	Kind of Hood	Size of Lamp Watts	Std. Pkg.	Price Each
****659**	Copper	25, 50	10	**$1.80**

MOISTURE AND DUST PROOF FIXTURES

National Electrical Code Standard

No. 665

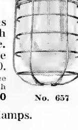
These fixtures are for use in refrigerating plants, engine rooms, plating rooms, mills, etc., where it is desirable to protect the lamp and live electrical parts from the deposit of moisture, dust and dirt.

Fixtures Without Guards

Weatherproof hood of copper regularly tapped for ½ inch stem, easy-to-wire porcelain socket and screw globe of heavy clear glass. For Benjamin Lamp Grip, add **$0.05** to list price. Asbestos gasket between globe and hood makes the fixture tight. Copper hood has natural finish.

Mfrs. No.	Kind of Hood	Size of Lamp Watts	Std. Pkg.	Price Each
663	Copper	25 to 60	10	**$2.10**
665	Copper	75, 100	10	**2.65**

Fixture with Guard



No. 657

Guarded type fixture No. 657 has strong tinned wire guard which screws on outside of hood and globe. In other respects, this unit is like No. 663 above. Standard package, 10.

Mfrs. No.	Kind of Hood	Size of Lamp Watts	Price Each
657	Copper	25 to 60	**$3.40**

Prices do not include wires or lamps.

BENJAMIN WATER TIGHT AND GAS AND VAPOR PROOF FIXTURES

WATER TIGHT FIXTURES

No. 6800

Fixtures are extremely rugged and have outlet box 1½ inches* deep of cast brass or iron as specified, heavy brass guard and globe holding ring, gaskets of rubber and heavy clear glass screw globe. Lamp socket is high heat molded material.

Benjamin Junction or Outlet Boxes have four bosses, spaced 90° apart, which can be tapped for ½, ¾ or 1 inch pipe. A ½ or ¾ inch outlet may be tapped in bottom of box. Boxes are invariably furnished not tapped for outlets, unless otherwise specified. No charge is made for tapping when sizes and number of outlets are given with the order. Iron parts and guard are black.

Fixture Complete

Mfrs. No	Size of Lamp, Watts	Kind of Box	Net Wt. Lb Ea.	Price Each
6800	40–75	Brass	4⅛	**$7.69**
6801	40–75	*Iron	4⅛	**6.39**
6804	100	Brass	5½	**9.31**
6805	100	*Iron	5½	**8.01**

*If ordered with 2¼ inch deep iron boxes, 5% extra discount will be allowed.

GAS AND VAPOR PROOF FIXTURES

National Electrical Code Standard

No. 1565

Benjamin Gas and Vapor Proof Fixtures are particularly adapted for use in powder mills, benzol plants, paint manufactories, dyeing and cleaning establishments, garages, gasoline filling stations, and other industries where hazardous atmospheric conditions prevail. A special gasket between globe and hood makes a gas tight joint.

See another page for same fixtures with reflectors.

Fixtures include cast iron hood tapped for ½ inch stem, two piece, easy-to-wire porcelain receptacle with Benjamin Lamp Grip, screw threaded enclosing globe and aluminum globe holder. Iron parts are green paint enameled.

Mfrs. No.	Size of Lamp Watts	Std Pkg.	Price Each
1563	25 to 75	10	**$3.25**
1565	100, 150	10	**3.90**
1568	200	5	**5.25**
1570	300, 500	5	**6.30**

Prices do not include wires or lamps.

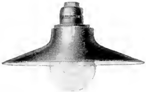
BENJAMIN GAS AND VAPOR PROOF FIXTURES

National Electrical Code Standard

Benjamin Gas and Vapor Proof Fixtures are particularly adapted for use in powder mills, benzol plants, paint manufactories, dyeing and cleaning establishments, garages, gasoline filling stations, and other industries where hazardous atmospheric conditions prevail. A special gasket between globe and hood makes a gas tight joint.

See another page for same fixtures less reflector.

WITH FLAT CONE REFLECTOR



No. 1555

For general illumination where eye shielding is not considered of first importance.

Includes cast iron hood tapped for ½ inch stem, porcelain enameled steel reflector, two piece, easy-to-wire porcelain receptacle with Benjamin Lamp Grip, screw threaded enclosing glohe, gaskets and aluminum globe holder. Metal parts are green paint enameled; reflector is white porcelain enamel inside and green outside.

Mfrs. No	Size of Lamp Watts	Size Reflector, In.	Std. Pkg.	Price Each
1553	*25,40,50,60,75	15	10	**$5.50**
1555	100,150	16	10	**6.95**
1558	200	18	5	**9.50**

WITH DOME REFLECTOR

No. 1545

For general illumination where it is desired to light both upright and flat surfaces, to shield the eyes and to eliminate sharp shadows by good diffusion.

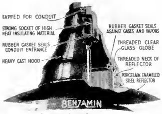
Includes cast iron hood tapped for ½ inch stem, porcelain enameled steel reflector, two-piece, easy-to-wire porcelain receptacle with Benjamin Lamp Grip, screw threaded enclosing globe, gaskets and aluminum globe holder. Metal parts are green paint enameled; reflector is white porcelain enamel inside and green outside.

Mfrs. No	Size of Lamp Watts	Size Reflector, In.	Std. Pkg.	Price Each
1543	*60,75	12	10	**$6.25**
1544	100,150	14	10	**7.00**
1545	200	16	5	**8.50**
1546	300,500	18	5	**10.35**

*Take Mazda B or Mill Type Lamps. When Mill Type Lamp is used, it is recommended that Benjamin No. 91 extension be attached to bring lamp filament down to proper position.

Prices do not include wires or lamps.

HEAVY DUTY GAS AND VAPOR PROOF FIXTURES



Cross Section View Showing Construction

Where inflammable matters, such as dust, gas and dangerous vapor, is present, considerations of safety for men and property makes the use of protective fixtures imperative.

BENJAMIN HEAVY DUTY GAS AND VAPOR PROOF FIXTURES

National Electrical Code Standard

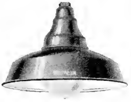
(Continued—See bottom of opposite column)

Nos. 6500-6512 incl. are gas, vapor and weatherproof. Because of their extremely rugged construction, they stand up almost indefinitely under the most rigorous conditions.

Construction—Heavy cast threaded hood tapped ½ inch; ¾ inch if specified. Porcelain enameled steel threaded reflector, socket and heavy clear glass screw globe. Gaskets effectively seal conduit and inside of screw globe from surrounding atmosphere, see cross section view of reflector in lower portion of opposite column.

Finish—Hood, green enameled; Reflector, green porcelain enamel outside, white inside.

WITH DOME REFLECTOR



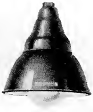
No. 6501

For general illumination where it is desired to light both upright and flat surfaces; to eliminate sharp shadows by good diffusion; to avoid reflected glare from the surfaces lighted and to avoid glare by having the angle of light cut-off agree with all state lighting codes. Angle of cut-off, 17½ degrees.

Mfrs. No.	Size of Lamp Watts	Dimens. In. Reflct. Diam.	Dimens. In. Fixt. Hght.	Net Wt Lb. Ea.	Std. Pkg.	Price Each
6500	75	12	9¾	4¾	10	**$8.00**
6501	100,150	14	10½	5⅝	10	**8.25**
6502	200	16	11½	6¾	5	**10.50**
6503	300,500	18	14	9½	5	**14.00**

WITH BOWL REFLECTOR

For general illumination where the lighting of horizontal surfaces is of first importance and where a high intensity is required in a relatively small area; also where reflectors must be mounted high above working plane.



No. 6506

Mfrs. No.	Size of Lamp Watts	Dimens. In. Reflct. Diam.	Dimens. In. Fixt. Hght.	Net Wt. Lb Ea.	Std. Pkg.	Price Each
6506	100,150	9	10½	4⅞	10	**$7.90**
6507	200	10	11½	5⅞	5	**9.90**
6508	300,500	12	14	8¾	5	**12.60**

WITH SYMMETRICAL ANGLE REFLECTOR

No. 6510

For lighting vertical surfaces, deep recesses, shelving, bays etc. where the light must come from the side.

Mfrs. No.	Size of Lamp Watts	Dimens. In. Reflct. Diam.	Dimens. In. Fixt. Hght.	Net Wt. Lb. Ea.	Std. Pkg.	Price Each
6510	100,150,200	10	13½	5	5	**$9.00**
6512	300,500	12	16⅝	8¾	5	**13.70**

Prices do not include wires or lamps.

BENJAMIN FIXTURE PARTS

No. 5045

BRASS CHAIN SUSPENSION

With ½ In. Loop, Canopy and Crowfoot

Mfrs. No.	Std. Lgth. In.	Size Canopy In.	Std. Pkg.	Price Each	Add'l Chain Per Ft
5045	**14**	**5x4**	**10**	**$2.30**	**$1.00**

IRON PIPE STEMS

No. 5063

No. 5064

Mfrs. No.	Std. Lgth. In.	Kind of Fitting	Size Pipe In.	Std. Pkg.	Price Each	Add'l Per Ft.
*5063	8	No. 6029	½	10	$1.15	$0.35
5064	8	No. 6031	½	10	1.30	.35

*For fitting with shock absorber, No. 6030 add 10 cents list.

IRON BRACKET AND MAST ARM

No. 5040

No. 6180

5040	40	No. 6186	¾	10	4.00	......
6186	Ball fitting only		¾ x ½	10	.55	......
6180	36	With chains and ¾ x ½" Fitting	¾	10	3.50	.80

Mast arms furnished up to 10 ft. in length.

IRON GOOSENECKS

No. 5066

With Fitting

Gooseneck No. 5066 is regularly furnished with wall fitting No. 5026, but may be furnished, if specified, with pole fitting No. 5025. No. 5067 includes wall fitting No. 5027.

Mfrs. No.	Std. Lgth. In.	Style	Size Pipe In.	Std. Pkg.	Price Each
5066	30	90° Bend	½	10	$1.35
5067	40	90° Bend	¾	10	2.25
		Less Fitting			
5036	30	90° Bend	½	10	.95
5037	40	90° Bend	¾	10	1.45

All iron parts are galvanized finish

BENJAMIN FIXTURE PARTS

CROSS ARM

No. 6203

Mfrs. No.	Description	Price Each
6203	With Porcelain Wire Openings and ¾ Inch Thread......	$1.75

Standard Package, 10.
Weight Standard Package, 16 Pounds.

SUSPENSION FITTINGS

No. 6029

No. 6028

No. 6049V

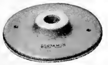
No. 6031M

Mfrs. No.	Size Tapped, In.	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
	With Non-Insulated Wire Openings			
6029	½	10	8	$0.80
6028	½	10	3	.35
6028-M	½ Male	10	3	.40
	With Porcelain Wire Openings			
6031	½	10	5	.95
6031-M	½ Male	10	5	1.05
6049	½	10	11½	1.15
6049-M	½ Male	10	11½	1.20
6049-V	¾ Male	10	11½	1.20

CAST IRON FLANGE

For Use with Benjamin Gas and Vaporproof Units

Standard package is 10.



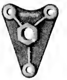
No. 5020

Mfrs. No.	Description	Price Each
5020	Flange, tapped ½-inch and asbestos gasket for 4-inch box	$0.65

POLE AND WALL FITTINGS

No. 5025

No. 5026



No. 5027

No. 5031

Mfrs. No.	Description	Size Tapped In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
**5025	With wire openings	½	10	8	$0.40
5026	With wire openings	½	10	4	.40
5027	Less wire openings	¾	10	13½	.80
5028	Less wire openings	½	10	13½	.80
5031	With insulated wire openings	¾	10	15½	1.15
5032	With insulated wire openings	½	10	15½	1.15

**With curved back, for pole use only.

Iron parts are galvanized.

OAMCO REFLECTORS

Paint Enameled Tin Reflectors—Schedule A

Finished Green Outside, Reflecting Surface White

FLAT CONE FOR WIDE LIGHT DISTRIBUTION

No. 508

Made with collars for standard holders. Unit Package 25.

Mfrs. No.	Diam. In.	For Holder In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Size of Lamp Watts	Price Per 100
508	8	2¼	100	27	20–25	**$16.20**
508A	10	2¼	100	45	25–40	**22.00**
508B	12	2¼	100	68	40–60	**43.00**
508C	14	2¼	100	85	100	**50.50**
508D	16	3¼	100	110	150–200	**62.00**

With holder attached to fit medium brass threaded shell socket.

No. 659

Mfrs. No.	Diam. In.	Unit Pkg.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Size of Watts Lamp,	Per 100 Price
659	8	25	100	26	20–25	**$31.00**
659A	10	25	100	36	25–40	**38.00**
659B	12	25	100	68	40–60	**55.00**
659C	14	25	100	85	100	**73.00**

SHALLOW CONE FOR DISTRIBUTION BELOW THE HORIZONTAL

No. 507A

Made with collars for standard holders as specified below. Unit Package 25.

Mfrs. No.	Diam. In.	For Holder In.	Std. Pkg	Wt. Lbs. Std. Pkg.	Size of Lamp Watts	Price Per 100
507A	8	2¼	100	30	20–25	**$24.00**
507B	10	2¼	100	45	25–40	**30.00**
507C	12	2¼	100	70	40–60	**48.00**

With holder attached to fit medium brass threaded shell socket.

No. 661

Mfrs. No.	Diam. In.	Unit Pkg.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Size of Lamp, Watts	Price Per 100
661	8	25	100	26	20–25	**$35.00**
661A	10	25	100	40	25–40	**43.00**
661B	12	25	100	50	40–60	**60.00**

DEEP CONE

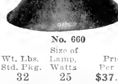
No. 547A

For local light distribution over machines, work benches, office use, etc.

Made with collars for standard holders. Unit Package 25.

Mfrs. No.	Diam. In.	For Holder In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Size of Lamp Watts	Price Per 100
547A	8	2¼	100	27	25	**$23.30**
547B	10	2¼	100	45	25–40	**27.20**
547C	12	2¼	100	60	40–60	**55.00**

With holder attached to fit medium brass threaded shell socket.



No. 660

Mfrs. No.	Diam. In.	Unit Pkg.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Size of Lamp, Watts	Price Per 100
660	8	25	100	32	25	**$37.00**
660A	10	25	100	45	25–40	**41.00**
660B	12	25	100	67	40–60	**71.00**

X-RAY SHOW WINDOW REFLECTORS

FLOOD-RAY NO. 33

With Center Spot Beam

No. 33

For 200 watt standard Mazda C lamps. This floodlight with its characteristic center spot beam is used in all types of windows, large or small. Regularly furnished with color frame with 4 pieces of colored gelatin, red, blue, green and amber. Adjustable arm changes direction of light.

Mfrs. No.	Width of Reflector	Height Over All	Diam. of Color Frame	Std. Pkg.	Price Each
33	10	11	11⅝	1	**$15.00**
Without Color Frame					**12.00**

HIPPO WINDOW FLOODLIGHT

With Center Spot Beam

300, 400, 500 Watt (P-S Bulb)

Mazda C Lamp

The Hippo is of the same type as the No. 33 but is a more powerful light. It gives a center spot beam of 50,000 candle power. Designed for white lighting only.

No. 88

Mfrs. No.	Dimensions, In. Base	Height	Diam.	Std. Pkg.	Price Each
88	5½	11	14	1	**$25.00**

FLOOD-RAY PORTABLE NO. 303

With Center Spot Beam

No. 303

This movable unit gives the same lighting effect as the No. 33 Flood-Ray. However, the 54 inch stand and 10 feet of cord with plug allow the unit to be moved around at will to secure just the right lighting effect. No. 303 with its Center Spot Beam takes a 200 watt Mazda C lamp. Furnished with color frame.

Mfrs. No	Dimen., In. Hght.	Base Diam.	Net Wt. Lb.	Std. Pkg.	Price Each
303	54	10	21	1	**$25.00**
Without Color Frame					**22.00**

HIPPO PORTABLE NO. 808

With Center Spot Beam

The same unit as No. 88 with the addition of a 54 inch stand and 10 feet of cord and plug. No. 808 takes a 500 watt Mazda C lamp and affords many desirable lighting effects because it can be moved around from one place to another.

Mfrs. No	Dimens., In. Hght	Base Diam.	Price Each
808	54	10	**$34.00**

Net weight, 21¾ pounds. Standard package, 1.

No. 808

X-RAY SHOW WINDOW REFLECTORS

JOVE REFLECTOR

150-100 Watt Mazda C Lamps

No. 600

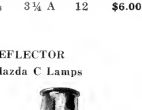
Designed for 150-100 watt Mazda C lamp. Gives a wide distribution of intense light such as is required for a high display. It should be used in show windows over 8 feet high having a depth approximately equal to the height.

Reflector conceals the bright lamp filament from view and confines all light in the window without wasting any on the ceiling of the window or on the sidewalk outside.

Mfrs. No.	Dimensions, In. Width	Depth	Height	Size of Holder, In.	Std. Pkg.	Price Each
600	10	9 11/16	7 5/8	3 1/4 A	12	**$6.00**

JUPITER REFLECTOR

150-100 Watt Mazda C Lamps



No. 610

A more concentrating reflector than the Jove, and should be used in shallow windows over 8 feet high and approximately one-half to two-thirds as deep.

It should be used in show windows having no background, or those where the background is very low and the upper part is of mirrored or transparent glass. Jove and Jupiter being of the same general dimensions are often alternated, especially in deep windows, to give a higher intensity of light on the display nearer the plate glass.

Mfrs. No.	Dimensions, In. Width	Depth	Height	Size of Holder, In.	Std. Pkg.	Price Each
610	10	10 1/8	7 5/8	3 1/4 A	12	**$6.00**

COLOR-RAY

For Jove and Jupiter Reflectors

No. 66

Consists of color frame with harness for attaching to Jove or Jupiter reflectors, and four color screens, in standard shades of red, amber, green and blue. The frame can be attached to the reflector in a few seconds and color slides slipped in and out of frame without disturbing it. Color screens are made of gelatin supported by a screen of fine steel strips. By combining color slides almost any tint or shade can be obtained to emphasize the spirit or season of the display.

Mfrs. No.	Size Frame, In.	Std. Pkg.	Price Each
66	10 1/8 x 10 7/8 x 1 1/4	10	**$5.00**

X-RAY SHOW WINDOW REFLECTORS

HOOD REFLECTOR

75 Watt Mazda C Lamps

No. 731

Lights smaller windows of the same general proportions as the Jupiter. Use for shallow windows up to 8 feet and approximately one-half to two-thirds as deep, having no background or those windows where the background is very low and the upper part is of mirrored or transparent glass.

Mfrs. No.	Dimensions, In. Width	Depth	Height	Size of Holder, In.	Std. Pkg.	Price Each
731	8 7/8	8 7/8	6 7/8	2 1/4 H	16	**$4.75**

HOOD JUNIOR

50 Watt Mill Type (P-19 Bulb) Mazda B Lamp

No. 11

The Hood, Jr., is a small size of the Hood No. 731 reflector. Like the Scoop Jr., it is especially designed for use with the 50-watt Mill Type Mazda B lamp, and will light shallow windows less than five feet high as effectively as the Hood and Jupiter light the larger windows. The Hood Jr. alternated with the Scoop Jr. gives a very efficient result. It is especially adopted for use in small show windows and display cases where it is essential to have a brilliant illumination on the display and also that the view is not obstructed.

Mfrs. No.	Dimensions, In. Width	Depth	Height	Size of Holder, In.	Std. Pkg.	Price Each
11	5 1/2	5 7/8	3 3/8	2 1/4 O	40	**$3.00**

SCOOP REFLECTOR

75 Watt Mazda C Lamps

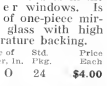
No. 778

Designed to illuminate small windows whose height equals their depth and where the trim is high in back. Will do the same work as the Jove does in the larger windows. Is made of one-piece mirrored glass with high temperature backing.

Mfrs. No.	Dimensions, In. Width	Depth	Height	Size of Holder, In.	Std. Pkg.	Price Each
778	7 7/16	6 1/2	6 7/8	2 1/4 O	24	**$4.00**

SCOOP JUNIOR

50 Watt Mill Type (P-19 Bulb) Mazda B Lamp



No. 7

The Scoop, Jr. is a small edition of the No. 778 Scoop and is especially designed for use with the 50-watt Mill Type Mazda B lamp. It fills a long need for use in deep windows less than five feet high and for large display cases. It is especially adapted for intense illumination where the space is limited and also where it is essential that the view is not obstructed.

Mfrs. No.	Dimensions, In. Width	Depth	Height	Size of Holder, In.	Std. Pkg.	Price Each
7	5	4 7/8	3 7/8	2 1/4 O	40	**$2.50**

WESTINGHOUSE REFLECTOR-SOCKET-FIXTURES

Easy to Wire—Guaranteed Weather-Proof

Westinghouse Reflector-Socket-Fixtures consist of one-piece porcelain enameled steel reflectors and reflector-sockets. The reflectors are fastened securely to the porcelain body of the reflector-sockets with fibre gaskets between the reflector heel and the porcelain seat and with copper washers within the reflector neck, making the fixture waterproof and protecting the enamel.

This design offers a compact rigid assembly and at the same time retains the Easy-to-Wire features so well known to users of Westinghouse Reflector Sockets.

Reflector-Socket-Fixtures are easy to wire. One complete fixture can be installed by one man in three minutes. Only a few operations are necessary. With the Reflector-Socket-Fixture for attachment to outlet box, the wires are pulled through the vertical openings in the porcelain socket and connected to the terminals. The reflector is then fastened to the socket by means of three screws which engage in bayonet slots in the top of the reflector. Reflector-Socket-Fixtures may be attached to conduit in a similar manner. In either case there are no loose wires to stuff back or washers and lock nuts to adjust. Reflector-Socket-Fixtures are waterproof and have cast iron covers heavily galvanized and painted. They will not corrode. The reflectors are insulated from the conduit and the terminals are protected from accidental short circuit.

The assembly of Reflector-Socket-Fixtures is such that the reflector is sure to seat in its correct position with respect to the lamp filament, thereby assuring the most efficient distribution of light from each of the different types. Reflector-Socket-Fixtures insure permanent high efficiency. They are well protected from dust accumulation and the reflectors are easily cleaned.

Reflector-Socket-Fixtures are interchangeable. Reflectors of different types may be substituted at any time and reflectors for medium base and mogul base lamps may be interchanged respectively with medium screw and mogul screw sockets. All Reflector-Socket-Fixtures are equipped with a double lamp grip which insures a perfect electrical contact and prevents the loosening of lamps under vibration.

Methods of Attachment—Reflector-Socket-Fixtures may be used on any type of installation and for either interior or exterior lighting purposes. They may be suspended:

1. On ½-inch or ¾-inch conduit.
2. Directly from outlet box or conduit.
3. On chain or cord by using suspension eyes.
4. On reinforced drop cord, by using porcelain bushings.

Approved Construction—Westinghouse Reflector-Sockets are approved by the National Board of Fire Underwriters.

KEY TO REFLECTOR STYLE NUMBERS

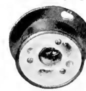
Style numbers for reflectors consist of six digits. The following table is a guide

FIRST DIGIT INDICATES FINISH	SECOND DIGIT INDICATES HOLDER	THIRD DIGIT INDICATES TYPE	FOURTH, FIFTH AND SIXTH DIGITS INDICATE SIZE OF LAMP
2—Enamel Aluminum	0—One piece Reflectors only for use with Reflector Sockets	3—Shallow Dome	040—40 Watt
3—Porcelain Enamel		4—Angle Type	060—60 Watt
		5—Focusing	075—75 Watt
	1—Snap Ring Holder	6—R L M Standard Dome	150—100-150 Watt
	2—2¾-inch Heel	7—Standard Bowl	200—200 Watt
	3—3¼-inch Heel	8—Flat Cone	500—300-400-500 Watt
			000—750-1000 Watt

Example 326075, 3, porcelain enamel, 2, 2¾-inch standard heel; 6, R L M Standard Dome, 075, 75 watt Type C lamp.

WESTINGHOUSE CUTTER INDUSTRIAL REFLECTOR SOCKETS
FOR BAYONET HEEL REFLECTORS

For Conduit


For Outlet Boxes or Condulets

Reflector sockets for the type of reflectors described on the previous page are made in two sizes, medium screw and mogul. Each size is furnished in four styles, for ½ inch conduit, for ¾ inch conduit, for 4 inch outlet box and condulet as shown below. Medium base reflector sockets are interchangeable with all reflectors rated for 200 watt or smaller lamps, and mogul base reflector sockets are interchangeable with all reflectors rated for 300 watt or larger lamps. Reflector sockets are contained in individual cartons packed in standard packages of ten.

Medium Lamp Base

Mfrs. No. For ½-In. Conduit	For ¾-In. Conduit	With 4-In. Outlet Box Cover	With Cover for Condulet*	Std.Pkg. Wt. Lb.	Price Each
336387	**336388**	**336389**	**336390**	14	**$1.30**
Mogul Lamp Base					
336391	**336392**	**336393**	**336394**	22	**1.95**

*Furnished with cover for Crouse-Hinds Condulets, series LO, CL, BO, BLM, DSO and DSP. Specify type of Condulet when ordering.

FOR STANDARD HEEL REFLECTORS

Reflector sockets for standard heel reflectors embody all the advantages found in reflector sockets for Bayonet heel reflectors. They have the "easy to wire," interchangeable and weatherproof features. These reflector sockets are offered as the most efficient and permanent means of supporting reflectors having 2¼ inch or 3¼ inch standard heels. Standard package, 10.

2¼-INCH REFLECTOR SOCKETS
With Keyless Porcelain Medium Screw Sockets

Mfrs. No. For ½-In. Conduit	For ¾-In. Conduit	With 4-In. Outlet Box Cover	With Cover for Condulet*	Std.Pkg. Wt Lb.	Price Each
336215	**336398**	**336319**	**336400**	30	**$1.60**

3¼-INCH REFLECTOR SOCKETS
With Keyless Porcelain Mogul Screw Sockets

336219	**336402**	**336320**	**336404**	35	**2.25**

*Furnished with cover for Crouse-Hinds Condulets, series LO, CL, BO, BLM, DSO and DSP. Specify type of Condulet when ordering.

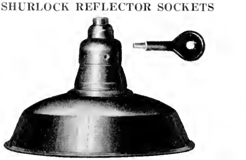
PORCELAIN BUSHINGS

When it is desired to suspend fixtures on drop cords porcelain bushings may be used with reflector sockets.

With ½ Inch Bushing

Mfrs. No.	For Socket Mfrs. No.				Std.Pkg. Qty.	Price Each
346002	336387	336391	336215	336219	100	**$0.10**

WESTINGHOUSE CUTTER INDUSTRIAL REFLECTOR SOCKETS
SHURLOCK REFLECTOR SOCKETS

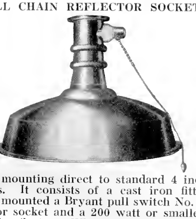


This fixture is an adaptation of the P & S Shurlock socket. It is assembled within a cast iron cap, which serves as the holder for any type Bayonet heel reflector for 200 watt or smaller lamps.

Without Reflector

Mfrs. No. For ½-In. Conduit	For 4-In. Outlet Box	Lamp Base	Std. Pkg. Qty.	Wt.Lb.	Price Each
338048	**346006**	Medium Screw	10	15	**$2.60**

PULL CHAIN REFLECTOR SOCKETS



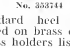
Is for mounting direct to standard 4 inch outlet boxes. It consists of a cast iron fitting on which is mounted a Bryant pull switch No. AY-19, a reflector socket and a 200 watt or smaller Bayonet heel reflector. When the pull chain feature is desired and it is not possible to mount fixtures direct on outlet boxes, reflector socket No. 336387 with desired Bayonet heel reflector mounted on ½ inch conduit equipped with Crouse-Hinds G-151 Condulet or No. 7402 Type G Unilet and Bryant Pull Switch No. AY-19, is suggested.

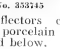
Without Reflector

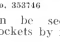
Mfrs. No.	Lamp Base	Std. Pkg. Qty.	Wt. Lb.	Price Each
336524	Medium Screw	10	45	**$2.90**

Any of the following reflectors may be used in connection with this Pull Chain reflector socket: Nos. W306075, W306150, W306200, W307060, W307075, W307150, W307200, W304040, W304060, W304200, W303060, W303150.

BRASS HOLDERS


No. 353744


No. 353745


No. 353746

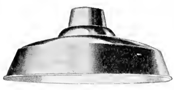
Standard heel reflectors can be securely mounted on brass or porcelain sockets by means of brass holders listed below.

Mfrs. No	For Socket	Std. Pkg.	Price Each
353744	Threaded Brass Shell	10	**$0.20**
353745	Beaded Brass Shell	10	**.20**
353746	Porcelain	10	**.20**

WESTINGHOUSE CUTTER INDUSTRIAL REFLECTORS

STANDARD RLM DOME TYPE

BAYONET HEEL
For Reflector Sockets



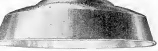
The RLM fixtures listed below are combinations of Bayonet-heel reflectors and reflector sockets. Prices are given for complete fixtures, and for Bayonet-heel reflectors only. In ordering complete fixtures specify number of reflector socket (see reflector sockets for Bayonet-heel reflectors) and number of reflector from following table.

Porcelain Enamel, White Interior, Green Exterior
Medium Lamp Base

For Lamp Watts	Bayonet Heel Reflector Only: Mfrs No.	Diam. In.	Std. Pkg. Qty.	Std. Pkg. Wt. Lb.	Price Each	*Complete Fixture
50	**W306050**	12⅛	10	20	**$1.90**	**$3.20**
75	**W306075**	12⅛	10	20	**2.00**	**3.30**
100–150	**W306150**	14⅛	10	27	**2.20**	**3.50**
200	**W306200**	16⅜	5	22	**3.00**	**4.30**
Mogul Lamp Base						
300–500	**W306500**	18⅛	5	30	**3.35**	**5.30**
750–1000	**W306000**	20¾	3	30	**5.25**	**7.20**

*Price of complete fixture includes Bayonet-heel reflector as listed and any reflector socket listed. In ordering give number of each.

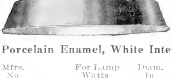
STANDARD HEEL



The 2¼ inch heel is supplied on reflectors rated for 200 watt or smaller lamps, and the 3¼ inch heel on reflectors for 300 watt and larger lamps. Reflectors with 2¼ inch heel can be securely attached to brass shell or porcelain sockets by means of brass holders. Reflector sockets should always be used with large reflectors having 3¼ inch heel.

Mfrs. No.	For Lamp Watts	Diam. In.	Depth In.	Std. Pkg. Qty	Std. Pkg. Wt Lb	Price Each
W326050	50	12⅛	5¼	10	20	**$1.80**
W326075	75	12⅛	5½	10	20	**1.90**
W326150	100-150	14⅛	6½	10	27	**2.20**
W326200	200	16⅜	7¾	5	22	**2.60**
W336500	300-400-500	18⅛	7¾	5	30	**3.60**
W336000	750-1000	20¾	10¼	3	25	**5.30**

WITH SNAP RING HOLDERS FOR BRASS SHELL SOCKETS



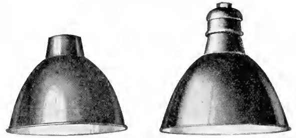
The snap ring holder forms an easy and dependable method of attaching reflectors to brass shell sockets.

Porcelain Enamel, White Interior, Green Exterior

Mfrs. No	For Lamp Watts	Diam. In	Depth In	Std. Pkg. Qty.	Std. Pkg. Wt Lb	Price Each
W316050	50	12⅛	5⅜	10	20	**$1.95**
W316075	75	12⅛	5⅞	10	20	**2.05**
W316150	100-150	14⅛	6⅞	10	27	**2.35**
W316200	200	16⅜	8⅛	5	22	**2.75**

WESTINGHOUSE CUTTER INDUSTRIAL REFLECTORS

STANDARD BOWL TYPE
BAYONET HEEL
For Reflector Sockets

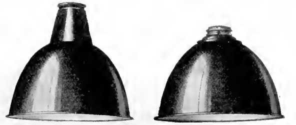


Medium Lamp Base

For Lamp Watts	Bayonet Heel Reflector Only: Mfrs. No.	Diam. In.	Std. Pkg. Qty.	Std. Pkg. Wt. Lb.	Price Each	*Complete Fixture
25–40–60	**W307060**	7½	10	15	**$1.60**	**$2.90**
75	**W307075**	8½	10	15	**1.80**	**3.10**
100–150	**W307150**	8½	10	15	**2.00**	**3.30**
200	**W307200**	10½	10	25	**2.50**	**3.80**
Mogul Lamp Base						
300–500	**W307500**	12¾	10	30	**2.75**	**4.70**
750–1000	**W307000**	15½	3	30	**4.55**	**6.50**

*Price of complete fixture includes Bayonet heel reflector as listed and any reflector socket listed. In ordering give style number of each.

WITH STANDARD HEEL—2¼ AND 3¼ INCH



The 2¼ inch heel is supplied on reflectors rated for 200 watt or smaller lamps, and the 3¼ inch heel on reflectors for 300 watt and larger lamps. The reflector sockets should always be used with the large reflectors having 3¼ inch heel.

Porcelain Enamel, White Interior, Green Exterior

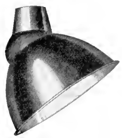
Mfrs. No.	For Lamp Watts	Diam. In.	Depth In.	Std. Pkg. Qty.	Std. Pkg. Wt. Lb.	Price Each
W327060	20-40-60	7½	5	10	15	**$1.50**
W327075	75	8½	6⅛	10	15	**1.60**
W327150	100-150	8½	7¼	10	15	**1.80**
W327200	200	10½	8⅜	10	25	**2.20**
W337500	300-400-500	12½	8⅜	10	30	**3.60**
W337000	750-1000	15¾	11⅞	5	30	**4.35**
Enam-Alum. Interior, Green Baked Paint Exterior						
W227060	25-40-60	7½	5	10	20	**.90**
W227075	75	8½	6⅛	10	25	**1.10**
W227150	100-150	8½	7	10	30	**1.15**
W227200	200	10½	8⅜	10	35	**1.70**
WITH SNAP RING HOLDERS FOR BRASS SHELL SOCKETS						
Porcelain Enamel, White Interior, Green Exterior						
W317060	25-40-60	7½	5⅜	10	15	**1.65**
W317075	75	8½	6½	10	15	**1.75**
W317150	100-150	8½	7⅜	10	15	**1.95**
W317200	200	10½	8¼	10	25	**2.35**
Enam-Alum. Interior, Green Baked Paint Exterior						
W217060	25-40-60	7¼	5⅜	10	15	**1.05**
W217075	75	8¼	6⅜	10	15	**1.25**
W217150	100-150	8¼	7⅜	10	15	**1.30**
W217200	200	10½	8¼	10	25	**1.80**

WESTINGHOUSE CUTTER INDUSTRIAL REFLECTORS

STANDARD ANGLE TYPE

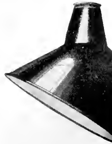
Standard angle fixtures listed below are combinations of Bayonet heel reflectors and reflector sockets.

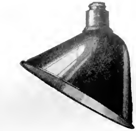
Medium Lamp Base



For Lamps Watts	Bayonet Heel Reflectors Only — Mfrs. No.	Diam. In.	Std. Pkg. Qty.	Std. Pkg. Wt.Lb.	Price Each	*Com. Fixture
25–40	W304040	6⅝	10	15	$1.30	$2.60
60	W304060	8	10	15	1.90	3.20
75–150–200	W304200	10½	10	15	2.90	4.20
Mogul Lamp Base						
300–500	W304500	12½	5	25	4.20	6.15
750–1000	W304000	15½	5	30	6.35	8.30

*Price of complete fixture includes Bayonet heel reflector as listed and any reflector socket listed. In ordering give style number of each.





Standard heel reflectors may be attached to brass shell or porcelain sockets by means of the brass holders or to reflector sockets. The 2¼ inch heel is supplied on reflectors rated for 200 watt or smaller lamps, and the 3¼ inch heel on reflectors for 300 watt and larger lamps. The reflector sockets should always be used with the large reflectors having 3¼ inch heel.

WITH STANDARD HEEL, 2¼ AND 3¼ INCH

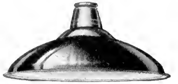
Mfrs. No.	For Lamp Watts	Diam. In.	Dpth. In.	Std. Pkg. Qty.	Std. Pkg. Wt. Lb.	Price Each
Porcelain Enamel, White Interior, Green Exterior						
W324040	25–40	6¾	5½	10	15	$1.50
W324060	60–75	8¼	6¾	10	20	1.70
W324200	100–150–200	10½	9	10	20	2.50
W334500	300–400–500	12½	11½	5	25	4.60
W334000	750–1000	15¼	15½	5	35	6.80
Enam-Alum Interior, Green Baked Paint Exterior						
W224040	25–40–50	6¾	5½	10	15	.60
W224060	60	8¼	6¾	10	15	.90
W224150	75–100–150–200	10½	9	10	15	1.55

WITH SNAP RING HOLDERS FOR BRASS SHELL SOCKETS

Mfrs. No.	For Lamp Watts	Diam. In.	Dpth. In.	Std. Pkg. Qty.	Std. Pkg. Wt. Lb.	Price Each
Porcelain Enamel, White Interior, Green Exterior						
W314040	25–40	6¾	5⅞	10	15	1.65
W314060	40–60	8¼	7⅛	10	15	1.75
W314200	75–100–150–200	10½	9¾	10	15	2.75
Enam-Alum Interior, Green Baked Paint Exterior						
W214040	25–40	6⅝	5⅞	10	15	.75
W214060	40–60	8	6⅛	10	15	1.05
W214200	75–100–150–200	10	9⅛	10	15	1.80

WESTINGHOUSE CUTTER INDUSTRIAL REFLECTORS

SHALLOW DOME TYPE



Shallow Dome Type With Standard Heel

Shallow dome reflectors are mainly used with small lamps and for outside illumination. The porcelain enamel is of the same quality as used on the RLM standard dome type. They are also furnished paint enameled green outside and white inside where low price reflectors are desired.

FOR REFLECTOR SOCKETS

Porcelain Enameled Only

Shallow dome fixtures listed below are combinations of Bayonet heel reflectors and reflector sockets. Prices are given for complete fixtures, and for Bayonet heel reflectors only. In ordering complete fixtures specify number of reflector socket (see reflector sockets for Bayonet heel reflectors) and number of reflector from following table.

Medium Lamp Base

For Lamps Watts	One-Piece Reflectors Only — Mfrs. No	Diam. In.	Std. Pkg. Qty.	Std. Pkg. Wt.Lb	Price Each	*Com. Fixture
25–40–60	W303060	12¼	10	20	$2.00	$3.30
75	W303075	12¼	10	25	2.20	3.50
100–150–200	W303150	15¼	10	30	2.50	3.80

*Price of complete fixture includes Bayonet heel reflector as listed and any reflector socket as listed elsewhere. In ordering give style number of each.

WITH STANDARD HEEL—2¼-INCH

Standard heel reflectors may be attached to brass shell sockets by means of the brass holders or to reflector sockets.

Mfrs. No.	For Lamp Watts	Diam. In.	Dpth. In.	Std. Pkg. Qty.	Std. Pkg. Wt. Lb.	Price Each
Porcelain Enameled						
W323040	25–40–50	10¼	3⅞	10	15	$1.25
W323060	40–60	12¼	4¼	10	20	1.45
W323075	75	12¼	5	10	25	1.70
W323150	100–150–200	15¼	6½	10	30	2.50
Paint Enameled						
W223040	25–40–50	10¼	3⅞	10	15	.80
W223060	40–60	12¼	4¼	10	20	.94
W223075	75	12¼	5	10	25	1.02
W223150	100–150–200	15¼	6½	10	30	1.26

WITH SNAP RING HOLDERS FOR BRASS SHELL SOCKETS

The snap ring holder forms an easy and dependable method of attaching reflectors to brass shell sockets.

Mfrs. No.	For Lamp Watts	Diam. In.	Dpth. In.	Std. Pkg. Qty.	Std. Pkg. Wt. Lb.	Price Each
Porcelain Enameled						
W313040	25–40–50	10¼	3⅞	10	15	1.40
W313060	40–60	12¼	4¼	10	20	1.60
W313075	75	12¼	5	10	25	1.85
W313150	100–150–200	15¼	6½	10	30	2.65
Paint Enameled						
W213040	25–40–50	10¼	3⅞	10	15	.92
W213060	40–60	12¼	4¼	10	20	1.06
W213075	75	12¼	5	10	25	1.14
W213150	100–150–200	15¼	6½	10	30	1.38

WESTINGHOUSE LUMINOUS TOP SOCKET FIXTURES

Disassembled

Westinghouse Luminous-Top reflector socket fixtures emit a portion of the light upwards, thereby relieving the contrast in lighting intensities above and below the fixture. The upward light also enables workmen to safely make repairs on line shafting, belts and other overhead equipment.

The "easy to wire," and interchangeable features of the reflector socket fixture line have been retained in the design of this fixture. Luminous-Top reflectors conform to the established standard shape for RLM Dome type reflectors, and are porcelain enameled, green outside and white inside. The vents for emitting light upwards are placed so as not to materially decrease the lighting intensities on the working plane below. These vents do not weaken the reflector which is still a continuous piece of metal.

The diffusing glass top is of light density but of the right characteristics so that the upward light is evenly distributed over the ceiling. The glass top is held firmly in place by a copper retainer which prevents breakage due to vibration or rough handling. The assembly of this fixture makes it easy to remove and clean the glass top or to replace it if broken.

In designing an installation for uniform lighting these fixtures should be treated as to mounting height and spacing exactly the same as in using regular RLM Dome types.

For ½ Inch Conduit

Mfrs. No.	Lamp Size Watts	Reflec. Diam. In.	Overall Fixture Hght. In.	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Complete Fixture
346045	75	12⅛	5¼	10	40	**$4.85**
346047	100–150	14⅛	6 11/32	10	45	**5.20**
346049	200	16⅜	7 7/32	5	30	**5.85**
	For ¾ Inch Conduit					
346046	75	12⅛	5¼	10	40	**4.85**
346048	100–150	14⅛	6 11/32	10	45	**5.20**
346050	200	16⅜	7 7/32	5	30	**5.85**

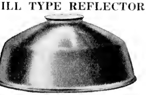
PARTS

Mfrs. No. Complete Fixture	Consists of— Reflector Socket Mfrs. No.	Reflector Socket Price Each	Reflector Mfrs. No.	Reflector Price Each	Glass Cap With Copper Clip Ring Mfrs. No	Glass Cap With Copper Clip Ring Price Each
346045	**336387**	**$1.30**	**338921**	**$2.50**	**337994**	**$1.05**
346047	**336387**	**1.30**	**338923**	**2.85**	**337995**	**1.05**
346049	**336387**	**1.30**	**338922**	**3.50**	**337995**	**1.05**
346046	**336388**	**1.30**	**338921**	**2.50**	**337994**	**1.05**
346048	**336388**	**1.30**	**338923**	**2.85**	**337995**	**1.05**
346050	**336388**	**1.30**	**338922**	**3.50**	**337995**	**1.05**

Reflectors, reflector sockets and glass caps are each separately packed in pasteboard cartons well protected against damage in transit.

WESTINGHOUSE INDUSTRIAL SPECIAL REFLECTORS

MILL TYPE REFLECTOR



Mill Type Reflector

Designed for use with the new mill type B lamp. Has a short P-19 bulb with ring coil filament and in 25 and 50 watt sizes. For severe service in which standard type B lamps prove unsatisfactory, the new mill type lamp equipped with this reflector will be found extremely rugged. Porcelain enameled, green outside, white inside. The contour is similar to that of the RLM standard dome.

May be attached to brass shell or porcelain sockets by means of the brass holders listed elsewhere.

Mfrs. No	Description	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
353017	Mill Type Reflector	10	12	**$1.25**

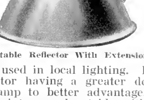
SEWING MACHINE TYPE

Sewing Machine Reflector

Where a high intensity of illumination is required in a small area or for a special purpose, such as threading the needle of a sewing machine, this reflector will be found very effective. It will accommodate a 10, 15 or 25-watt type B lamp in a S-17 bulb and a 25 or 50-watt mill type lamp in P-19 bulb. Finished in porcelain enamel, green outside, white inside or green paint enamel outside and aluminum inside. Furnished with holder to fit brass shell socket.

Mfrs. No.	Description	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
353747	Porcelain Reflector	10	5	**$0.95**
353778	Painted Reflector	10	5	**.60**

PORTABLE TYPE WITH EXTENSION



Portable Reflector With Extension

Commonly used in local lighting. It is an improved reflector having a greater depth which shields the lamp to better advantage. Made of steel, green paint enamel outside with aluminum finished reflecting surface.

Mfrs. No	Description	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
353748	Portable Reflector	10	5	**$0.75**

WESTINGHOUSE VAPOR-PROOF FIXTURES
WITH EASY-TO-WIRE REFLECTOR SOCKETS

Designed for use in plants where explosive gases and dust accumulating in the standard types of industrial lighting fixtures would cause explosions and fires and where moisture and smoke fumes would hasten corrosion of exposed metal parts.

Each fixture uses the Westinghouse reflector socket, approved by the National Board of Underwriters. This socket is easy to wire and is provided with lamp grips to insure perfect electrical connections and prevent the lamps from loosening when the fixture is subjected to vibration. The cap and globe holder are made of cast iron, heavily galvanized and painted. They will not corrode under the most severe service conditions. Special gaskets are used in all joints to make the fixtures tight. Fixtures may be used with or without lamp guards. Prices include clear glass globe but not lamp, wiring or guards.

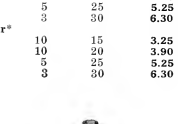
Vapor-Proof Fixture With Ball Globe

WITH GLOBE ONLY

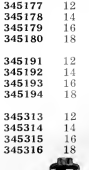
Mfrs. No.	For Lamp Sizes	Diameter of Globe	Std. Pkg.	Shpg. Wt. Lb. Each	Price Each
		For ½ Inch Pipe			
345173	25–40–60–75	5 Inch Ball, Clear	10	15	$3.25
345174	100–150	5 Inch Ball, Clear	10	20	3.90
345175	200	5x6 Inch Pear, Clear	5	25	5.25
345176	300–400–500	8 Inch Ball, Clear	3	30	6.30
		For ¾ Inch Pipe			
345187	25–40–60–75	5 Inch Ball, Clear	10	15	3.25
345188	100–150	5 Inch Ball, Clear	10	20	3.90
345189	200	5x6 Inch Pear, Clear	5	25	5.25
345190	300–400–500	8 Inch Ball, Clear	3	30	6.30
		With 4 Inch Outlet Box Cover*			
345309	25–40–60–75	5 Inch Ball, Clear	10	15	3.25
345310	100–150	5 Inch Ball, Clear	10	20	3.90
345311	200	5x6 Inch Pear, Clear	5	25	5.25
345312	300–400–500	8 Inch Ball, Clear	3	30	6.30

WITH RLM DOME REFLECTOR

Mfrs. No.	Diam. of Reflec. In.	For Lamp Sizes	Diameter of Globe	Std. Pkg.	Shpg. Wt. Lb. Each	Price Each
			For ½ Inch Pipe			
345177	12	75	5 Inch Ball, Clear	10	25	$6.25
345178	14	100–150	5 Inch Ball, Clear	10	30	7.00
345179	16	200	5x6 Inch Pear, Clear	5	35	8.50
345180	18	300–500	8 Inch Ball, Clear	3	40	10.35
			For ¾ Inch Pipe			
345191	12	75	5 Inch Ball, Clear	10	25	6.25
345192	14	100–150	5 Inch Ball, Clear	10	30	7.00
345193	16	200	5x6 Inch Pear, Clear	5	35	8.50
345194	18	300–500	8 Inch Ball, Clear	3	40	10.35
			With 4 Inch Outlet Box Cover*			
345313	12	75	5 Inch Ball, Clear	10	25	6.25
345314	14	100–150	5 Inch Ball, Clear	10	30	7.00
345315	16	200	5x6 Inch Pear, Clear	5	35	8.50
345316	18	300–500	8 Inch Ball, Clear	3	40	10.35



Vapor-Proof Fixture with RLM Dome Type Reflector and Ball Globe



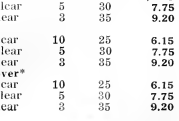
Sectional View of Vapor-Proof Fixture with Bowl Type Reflector and Pear-Shape Globe

WITH BOWL REFLECTOR

Mfrs. No.	Diameter of Reflec. In.	For Lamp Sizes	Diameter of Globe	Std. Pkg.	Shpg. Wt. Lb. Each	Price Each
			For ½ Inch Pipe			
345181	10½	75–100	5 Inch Ball, Clear	10	25	$6.15
345182	10½	200	5x6 Inch Pear, Clear	5	30	7.75
345183	15½	300–500	8 Inch Ball, Clear	3	35	9.20
			For ¾ Inch Pipe			
345195	10½	75–100	5 Inch Ball, Clear	10	25	6.15
345196	10½	200	5x6 Inch Pear, Clear	5	30	7.75
345197	15	300–500	8 Inch Ball, Clear	3	35	9.20
			With 4 Inch Outlet Box Cover*			
345317	10½	75–100	5 Inch Ball, Clear	10	25	6.15
345318	10½	200	5x6 Inch Pear, Clear	5	30	7.75
345319	15	300–500	8 Inch Ball, Clear	3	35	9.20

WITH CONCENTRIC REFLECTOR

Mfrs. No.	Diam. of Reflec. In.	For Lamp Sizes	Diameter of Globe	Std. Pkg.	Shpg. Wt. Lb. Each	Price Each
			For ½ Inch Pipe			
345184	14	75	5 Inch Ball, Clear	10	30	$5.50
345185	16	100–150	5 Inch Ball, Clear	10	35	6.95
345186	18	200	5x6 Inch Pear, Clear	5	40	9.50
			For ¾ Inch Pipe			
345198	14	75	5 Inch Ball, Clear	10	30	5.50
345199	16	100–150	5 Inch Ball, Clear	10	35	6.95
345308	18	200	5x6 Inch Pear, Clear	5	40	9.50
			With 4 Inch Outlet Box Cover*			
345320	14	75	5 Inch Ball, Clear	10	30	5.50
345321	16	100–150	5 Inch Ball, Clear	10	35	6.95
345322	18	200	5x6 Inch Pear, Clear	5	40	9.50



Vapor-Proof Fixture with Concentric Type Reflector and Pear Shape Globe

*Will be furnished when so specified, without additional charge, for Crouse-Hinds Condulets, Series LO, CL, BO, BLM, DSO and DESP. Specify type of Condulet when ordering.

WESTINGHOUSE VAPOR-PROOF FIXTURES

LAMP GUARDS—HEAVILY TINNED

No. 336420 is for fixture Nos. 345173, 74, 77, 78, 81, 84, 85, 87, 88, 91, 92, 95, 98, 99, 345309, 10, 13, 14, 17, 20, 21.

No. 336421 is for fixture Nos. 345175, 79, 82, 86, 89, 93, 96, 345308, 11, 15, 18, 22.

No. 336422 is for fixture Nos. 345176, 80, 83, 90, 94, 97, 345312, 16 and 19.

Mfrs. No.	Diam. In.	Depth In.	Price Each
336420	5½	5	$1.30
336421	6½	7	1.60
336422	8½	8	2.25

VAPOR-PROOF REFLECTORS

RLM Dome Mfrs. No.	RLM Dome Price Each	Deep Bowl Mfrs. No.	Deep Bowl Price Each	Concentric Mfrs. No.	Concentric Price Each
W349075	$3.00	W347100	$2.25	W341075	$2.25
W349105	3.10	W347200	2.50	W341150	3.05
W349200	3.25	W357500	2.90	W341200	4.25
W359500	4.05	.....	.....	.....	.....

VAPOR-PROOF REFLECTOR SOCKET PARTS

Socket Mfrs. No.	Price Each	Socket Mfrs. No.	Price Each
336543	$2.50	336549	$3.70
336544	3.15	336550	4.60
336545	3.70	336551	2.50
336546	4.60	336552	3.15
336547	2.50	336553	3.70
336548	3.15	336554	4.60

Price includes globe seat gasket.

GASKETS FOR VAPOR-PROOF FIXTURES

Mfrs. No.	Description	Price Each
338760	Upper Gasket for Med. Base Socket	$0.07
336405	Lower Gasket for Med. Base Socket	.07
338761	Upper Gasket for Mog. Base Socket	.07
336406	Lower Gasket for Mog. Base Socket	.07
338771	Globe Seat Gasket for 5 Inch Ball	.07
338772	Globe Seat Gasket for 8 Inch Ball	.07

GLASS GLOBES

Mfrs. No.	Description	Price Each
336423	5 Inch Ball Vapor-Proof Globe	$0.75
336424	5x6 Inch Pear Shape Vapor-Proof Globe	.80
336425	8 Inch Ball Vapor-Proof Globe	1.70

WESTINGHOUSE PULLEY SOCKETS

Pulley Socket in Operation

A reliable cut-out and lowering device by means of which cleaning and relamping may be done in absolute safety.

A pull on the rope disconnects the electrical parts and the entire fixture comes down dead. This disconnection may be made without first switching off the circuit, for within this pulley-socket wiping contacts are provided of sufficient capacity to make and break the current of a 1000 watt lamp. The next pull resets the fixture in place. An angle reflector may be used. It will always come back to its true position and lock into place so that it is self supporting.

All parts are built in liberal proportions and totally enclosed in a cast iron housing which is galvanized and then painted. The socket is provided with double lamp-grip under which the lamp is held so that it cannot loosen due to vibration.

To obtain prices and shipping weights of complete fixtures including reflectors, add to the following the prices and shipping weights for Standard Bayonet-heel reflectors. Pulley socket No. 338029 will take reflectors of the following numbers: W306075, W306150, W306200, W307060, W307075, W307150, W307200, W304040, W304060 and W304200. Pulley socket No. 338030 will take reflectors of the following numbers: W306500, W306000, W307500, W307000, W304500 and W304000.

Where pulley sockets are installed on very high ceilings, additional rope may be added by the use of two rope couplings and one "S" hook. Where it is necessary to avoid overhead cranes, etc., the rope from the pulley socket may be brought to the side wall or to a column by the use of swivel pole pulley No. 334987 listed on another page. If additional rope is desired order No. 338019, ⅝ inch weatherproof lamp rope.

In ordering specify number of pulley socket, also number of reflector.

For Bayonet Heel Reflectors

Mfrs. No.	Description	Wt. Lbs. Std. Pkg.	Price Each
338029*	Pulley Socket, Medium Base for 200 Watt and Smaller Lamps	85	$7.80
338030*	Pulley Socket, Mogul Base for 300 Watt and Larger Lamps	95	8.45
	Accessories		
350583	20 Foot Trimmers Rope of ¾ Inch Spot Cord with Coupling and S Hook on both ends	10	1.30
350579	Rope Coupling with Three Pins	1	.40
336769	¾ Inch Pipe Adapter for Mounting on Brackets. Standard Package, 10.	30	1.00

*Pulley socket only without reflector.

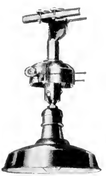
One No. 350579 rope coupling with three pins is supplied with each pulley socket.

Nos. 338029 and 338030 are tapped for mounting on ½ inch conduit and are supplied with 4 inch outlet box covers for mounting directly on outlet box.

WESTINGHOUSE AUTOMATIC CUTOUT HANGERS

For Use With Reflector Socket Fixtures on Multiple Circuits

With Reflector Socket Fixture, Standard Angle Type



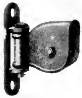
With Reflector Socket Fixture, RLM Standard Dome Type

These automatic hangers facilitate cleaning reflectors without the use of ladders, thus saving much time and expense with absolute protection against accidental short-circuits or contact with live wires.

This hanger may be used with angle type reflectors and other fixtures designed to throw light in some particular direction, for the lower part of the cut-out as it enters the stationary part always turns to exactly its former position.

The Universal suspension clamp furnished with this device may be used for fastening the hanger to the ceiling on conduit, cable or on a pipe bracket with ¾ to 1¼ inch pipe. The swivel pole pulley and $\frac{3}{16}$ or ¼ inch weatherproof cord or ¼ inch galvanized ebony wire rope should be used in connection with this cut-out.

Mfrs. No.	Description	Std. Pkg.	Shpg. Wt. Lb. Each	Price Each
345338	With ½ Inch Male Thread Fitting	10	20	**$6.80**
345339	With ¾ Inch Male Thread Fitting	10	20	**6.95**



Swivel Pole Pulley

SWIVEL POLE PULLEYS

Weatherproof pole pulley, swiveled so that it can swing sideways and keep in line with the hoisting rope. It has a strong malleable iron pole plate.

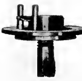
Mfrs. No.	Std. Pkg.	Wt. Lb. Each	Price Each
334987	10	4¼	**$1.30**

ALWAYS-LEVEL SWIVEL HANGER

For Suspension From 4 Inch Outlet Box

A ball and socket arrangement which serves as an outlet box cover supporting the fixture so that it may swing in any direction when struck. Made of cast iron, galvanized and painted green. Tapped for ½ inch pipe.

Mfrs. No.	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
350225	10	15	**$0.80**

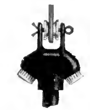


Swivel Hanger for 4-Inch Outlet Box

WESTINGHOUSE SUSPENSION EYES

Single Bushed Suspension Eye

Double Bushed Suspension Eye



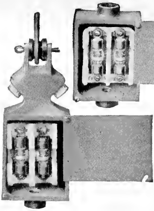
Double Bushed Eye with Insulated Suspension Ring

Suspension Eyes are made of cast iron, galvanized and painted. Porcelain bushings protect the entrance wires. For fixtures of low wattage where lamp cord or duplex cord can be used the single bushed suspension eye will be found convenient.

This arrangement allows lighting mains to be run in straight lines on ceilings without interfering with overhead belting. Double bushed eyes should be used in installations of over 200 watts per fixture. The entire fixture may be insulated when desired by using eyes with porcelain insulated suspension rings. Suspension eyes are threaded for ½ inch conduit.

Mfrs. No.	Description	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
353750	Single Bushed	10	12	**$0.85**
335113	Double Bushed	10	15	**.95**
344535	With Insulated Ring	10	23	**1.05**

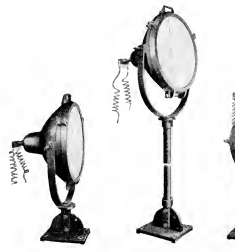
WESTINGHOUSE FUSED SUSPENSION HANGERS



With installations using large lamps of 500 watts or over it is desirable to fuse each fixture. Fused suspension hangers are convenient for this purpose and are furnished in two styles as illustrated. The boxes are of cast iron, galvanized with steel covers. They are threaded to fit ½ inch conduit and finished in paint-enameled green.

Mfrs. No.	Description	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
353032	Through Type	10	45	**$4.75**
352772	Hanger Type	10	50	**6.00**

WESTINGHOUSE FLOOD LIGHTING PROJECTORS



Universal with Table Mounting | Universal with Pipe Stand | Standard with Table Mounting

Adjustable for any mounting. Reflectors are made of copper, heavily silver plated and finished with coat of water and fume-proof lacquer. Mogul base in the Universal is adjustable for focusing; permits use of 250 and 500 watt flood light lamps. In the standard projector, the mogul base socket is adjustable vertically and horizontally to permit use of 300-1000 watt standard gas filled lamps.

Narrow Beam Projector

Universal Mfrs. No.	Type	Standard Mfrs. No.	Type	Wt., Lb. Net	Wt., Lb. Shpg.	Price Each
336180	ANB	335879	MNB	46	81	$50.00
350047	ANS	350065	MNS	52	87	52.00
336365	CNB	336369	RNB	70	105	38.00
336367	CNS	336371	RNS	76	111	40.00

Wide Angle Beam Projector

336182	AWB	335880	MWB	46	81	50.00
350052	AWS	350066	MWS	52	87	52.00
336366	CWB	336370	RWB	70	105	38.00
336368	CWS	336372	RWS	76	111	40.00

Body Only, With Narrow Beam Reflector

346109	AN	346110	MN	25	50	45.00
336181	CN	335877	RN	49	74	33.00

Body Only, With Wide Angle Beam Reflector

346108	AW	346111	MW	25	50	45.00
336183	CW	335878	RW	49	74	33.00

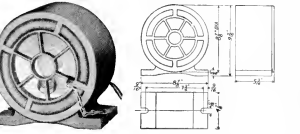
Narrow Beam Reflector Only

336174	.....	335881	.....	2	5	8.00
336175	.....	335883	.....	2	5	8.00

Key to type letters: A, cast aluminum body for Universal; C, cast iron body for Universal; M, cast aluminum body for Standard; N, narrow beam reflector; W, wide angle reflector; S, pipe standard; B, steel bow and table. Example: Type ANB is Standard projector with aluminum body, narrow beam reflector and steel bow with table.

WESTINGHOUSE MINE LOCOMOTIVE HEADLIGHTS

TYPE S—GAS PROOF



This new type S is a permissible headlight for gascous mines. It is sufficiently rugged to withstand the hardest possible operating conditions, and so compact as to fit in the available space at the ends of mine locomotives with ample clearance to safeguard against breakage. Housing and front cover are made of high grade cast iron, heavy enough to withstand a terrific amount of abuse without injury.

The front cover is fitted to the case by machined threads with cork gaskets, each side of glass front allowing an inch of actual creepage distance in all joints, so that any gases ignited within the headlight will be cooled before reaching the outside. The cover of this headlight has a threaded fit of fully an inch and a machined flange in addition. The glass front is ½ inch thick to conform with requirements. The reflector socket and lamp are assembled in a framework which is suspended on springs within the cast iron housing.

A socket is provided for medium base lamps of from 23 to 94 watt capacity. The lamps used should be of the concentrated filament type in the G 18½ and G 25 round bulbs, which are made for use on circuits of from 105 to 130 volts. The headlights may, therefore, be used in multiple on 105 to 130 volt circuits, or two in series on 210 to 260 volt circuits. For special voltages use headlight resistors, No. 336531.

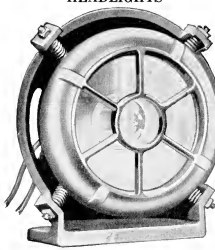
Diameter of housing, 8⅞ inches; height over all, 9⅞ inches; length base, 8⅞ inches; width base, 5⅞ inches. Net weight, 39 pounds; shipping weight, 45 pounds.

Mfrs. No.	Description	Price Each
350219	Type S Mine Locomotive Headlight, Approved Gas Proof Construction	$30.00

REPAIR PARTS FOR ABOVE

Mfrs. No.	Description	Net Wt. Lbs.	Price Each
350255	Glass Retaining Ring	1½	$0.90
352821	Reflector Support Assembly	2	6.25
352823	Socket	..	.50
350257	Suspension Spring	..	.15
350254	Cast Iron Cover	9	4.25
352815	Cover Holding Chain	..	.55
350264	Socket Retaining Stud	..	.35
350260	Reflector	1	4.00
350262	Glass Front	2	2.00
353789	Outside Cork Gasket	..	.10
353790	Inside Cork Gasket	..	.10

WESTINGHOUSE MINE LOCOMOTIVE HEADLIGHTS



Frame, case and cover are made of high grade cast iron, heavy enough to withstand a terrific amount of abuse without injury. The lens holder is fitted to the case with a threaded joint, which, with rubber gaskets, tightly seals the headlight. A heavy cast iron grid in front of the lens protects it from breakage.

The case, which contains the socket and lamp, is entirely suspended from six springs. These springs oppose each other and are always in tension. Thus, the spring suspension is equally effective in all directions, assuring longest possible lamp life.

A socket is provided for medium base lamps of from 23 to 94 watt capacity. These lamps should be of the concentrated filament type in the G 18½ and G 25 round bulbs, which are made for use on circuits of from 105 to 130 volts. The headlights may, therefore, be used in multiple on 105 to 130 volt circuits or two in series on 210 to 260 volt circuits. Reflector is made of heavy copper, silver plated. Its parabolic shape ensures proper redirection of the light rays. Height over all, 12⅝ inches; width, 12 inches; depth, 7⅞ inches.

Gas Proof Type

Mfrs. No.	Description	Price Each
350125	With Electrical Connection Assembled on Left Hand Side Facing Headlight	**$36.00**
336513	With Electrical Connection Assembled on Right Hand Side Facing Headlight	**36.00**

Net weight each, 84 pounds; shipping weight, 110 pounds.

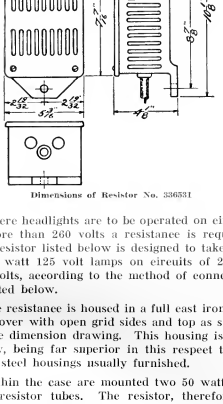
REPAIR PARTS FOR ABOVE

Mfrs. No.	Description	Wt. Lb.	Price Each
339136	Frame Only	18½	**$8.50**
339128	Headlight Without Frame	13	**6.25**
339129	Cover	8¼	**7.25**
339134	Lens (glass front)	1¼	**2.50**
335277	Suspension Spring	....	**.90**
339131	Rubber Gasket between Lens and Cover	....	**.10**
339132	Rubber Gasket between Cover and Case	....	**.10**

Note.—Prices are f. o. b. factory.

WESTINGHOUSE MINE LOCOMOTIVE HEADLIGHTS

HEADLIGHT RESISTORS



Dimensions of Resistor No. 336331

Where headlights are to be operated on circuits of more than 260 volts a resistanee is required. The resistor listed below is designed to take eare of 36 watt 125 volt lamps on eireuits of 260 to 825 volts, aecording to the method of connection as listed below.

The resistanee is housed in a full east iron ease and eover with open grid sides and top as shown on the dimension drawing. This housing is very sturdy, being far superior in this respeet to the sheet steel housings usually furnished.

Within the case are mounted two 50 watt, 600 ohm resistor tubes. The resistor, therefore, is capable of dissipating 100 watts and has a total resistance of 1200 ohms.

The following are the various combinations of 36 watt 125 volt lamps with resistors:

One headlight on 130 to 475 volt circuit, one resistance box required.

One headlight on 475 to 825 volt eireuit, two resistance boxes required.

Two headlights in series on 260 to 600 volt eireuit, one resistance box required.

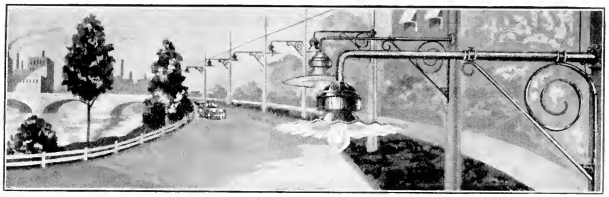
In ease it is desired to use other than the 36 watt lamps, special resistors ean be furnished. Prices will be quoted upon request.

Mfrs. No.	Description	Wt. Lb. Each Net	Wt. Lb. Each Ship.	Price Each
336531	Resistanee Unit for Mine Locomotive Headlight	13	18	**$17.50**

Note.—Prices are f. o. b. factory.

WESTINGHOUSE OVERHEAD STREET LIGHTING EQUIPMENT

MODERN STREET LIGHTING SYSTEMS WITH CUTTER STREETHOODS



The methods employed for operating street lighting systems of type C incandescent lamps may be divided into two classes: Multiple and Series operation.

Multiple systems are usually operated at 110 or 220 volts, supplied from an ordinary constant potential distribution transformer. This system has been generally used for very small installations where the distance traversed by line wires is not sufficiently great to warrant the use of the regulating equipment required for a series system.

Series systems, using one conductor to traverse the lighted area, as compared with two conductors for the multiple system, are used on all installations where the expense of regulating equipment is offset by the saving in power losses and cost of conductors. The series system is usually more economical; but for very small installations where complete regulating apparatus would be required, it may be found more practical to install multiple lamps, although certain variations of the series system described below are particularly applicable to small installations.

METHODS OF OPERATION OF SERIES DISTRIBUTION SYSTEMS

There are several methods of using series incandescent lamps in Cutter streethoods, viz.:

1. The constant-current, straight series system, using a film socket with each lamp. In the event of lamp failure, the calibrated film in the socket punctures under the full line voltage and re-establishes the circuit instantly. The system is operated through a moving coil regulating transformer of either the pole mounted type controlled by a time switch, or the station type with manually operated control panel. The regulator takes care of changes in the load and maintains a uniformly constant current. This method is suitable for all series systems employing lamps ranging from 400 to 6000 lumens.

2. The series system using an individual two-winding transformer or safety coil placed on the pole from which the service wires lead to the fixture. The transformer primaries are connected in series and each secondary delivers the correct amount of current at the rated lamp voltage. Multiple streethoods are used. The system is usually supplied through a regulating transformer. In many cases the safety coils are placed on the same circuit with fixtures equipped with film sockets as outlined above. This method is particularly applicable to installations of series lamps of 4000 lumen rating or larger, and has the special feature of providing a low potential in the line wires from transformer to fixture.

3. The constant potential series system using a multiple socket and a shunt or reactance coil with each lamp. This system is usually supplied by an adjuster-socket transformer which is provided with a number of extra taps to obtain the correct circuit voltage. When a lamp fails, the reactance of the shunt coil automatically maintains the proper current. This system is used on small installations of 2500 lumen lamps or smaller where the total circuit capacity is two kilowatts or less. Adjuster-socket streethoods are used.

Local conditions govern the selection of the method of operation of a series distribution system. If complete data is given on the number and size of lamps, plan of streets, central station equipment and methods of distribution now used, our Illuminating Engineering Bureau will make recommendations for the most efficient and suitable method of distribution.

CUTTER STREETHOODS

STANDARD SERIES—BRACKET TYPE

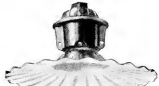
For 400, 600, 800 and 1000 Lumen Type C Lamps*

Standard Package Quantity, 10

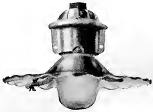
With 20 Inch Flat Radial Reflector

Mfrs. No. Size Bracket ¾ Inch	1¼ Inch	Description	Shpg. Wt. Lb. Each	Price Each
353453	353454	Complete Unit	13	$8.40
		Consists of Two Parts as Follows		
353122	353123	Porcelain Head with Socket and Canopy	8	5.70
334746	334746	20 Inch Flat Radial Reflector	5	2.70

With 18 Inch Radial Bowl Reflector



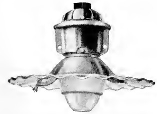
Mfrs. No. Size Bracket ¾ Inch	1¼ Inch	Description	Shpg. Wt. Lb. Each	Price Each
353445	353446	Complete Unit	12	8.40
		Consists of Two Parts as Follows		
353122	353123	Porcelain Head with Socket and Canopy	8	5.70
335940	335940	18 Inch Radial Bowl Reflector	4	2.70



With 18 Inch Radial Bowl Reflector and 6½ Inch Holophane Superlux Refractor

Mfrs. No. Size Bracket ¾ Inch	1¼ Inch	Description	Shpg. Wt. Lb. Each	Price Each
353447	353448	Complete Unit	20	14.40
		Consists of Four Parts as Follows		
353122	353123	Porcelain Head with Socket and Canopy	8	5.70
335940	335940	18 Inch Radial Bowl Reflector	4	2.70
335967	335967	6½ Inch Holophane Superlux Refractor	5	4.20
344352	344352	Hinged Refrac. Holder	3	1.80

With 18 Inch Radial Bowl Reflector and 6½ Inch Holophane Skirted Refractor



Mfrs. No. Size Bracket ¾ Inch	1¼ Inch	Description	Shpg. Wt. Lb. Each	Price Each
353449	353450	Complete Unit	20	14.40
		Consists of Four Parts as Follows		
353122	353123	Porcelain Head with Socket and Canopy	8	5.70
335940	335940	18 Inch Radial Bowl Reflector	4	2.70
335980	335980	6½ Inch Holophane Skirted Refractor	5	4.20
344352	344352	Hinged Refrac. Holder	3	1.80

*Lamps are not included. Nominal candle power of series lamps is 1/10 of lumen rating.

CUTTER STREETHOODS

STANDARD SERIES—BRACKET TYPE

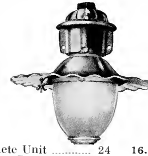
For 2500, 4000 and 6000 Lumen Type C Series Lamps*

Standard Package Quantity, 10

With 20 Inch Radial Bowl Reflector with Extension For Bare Lamps

Mfrs. No. Size Bracket ¾ Inch	1¼ Inch	Description	Shpg. Wt. Lb. Each	Price Each
353463	353464	Complete Unit	13	$9.30
		Consists of Two Parts as Follows		
353122	353123	Porcelain Head with Socket and Canopy	8	5.70
336153	336153	Radial Bowl Reflector with Extension	5	3.60

With 18 Inch Radial Bowl Reflector and 8½ Inch Holophane Superlux Refractor



Mfrs. No. Size Bracket ¾ Inch	1¼ Inch	Description	Shpg. Wt. Lb. Each	Price Each
353455	353456	Complete Unit	24	16.80
		Consists of Four Parts as Follows		
353122	353123	Porcelain Head with Socket and Canopy	8	5.70
335940	335940	18 Inch Radial Bowl Reflector	4	2.70
352939	352939	8½ Inch Holophane Superlux Refractor	9	6.60
344352	344352	Hinged Refrac. Holder	3	1.80

With 18 Inch Radial Bowl Reflector and 8½ Inch Holophane Skirted Refractor

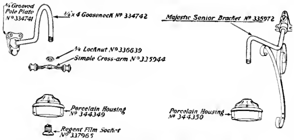
Mfrs. No. Size Bracket ¾ Inch	1¼ Inch	Description	Shpg. Wt. Lb. Each	Price Each
353457	353458	Complete Unit	23	16.80
		Consists of Four Parts as Follows		
353122	353123	Porcelain Head with Socket and Canopy	8	5.70
335940	335940	18 Inch Radial Bowl Reflector	4	2.70
252212	252212	8½ Inch Holophane Skirted Refractor	8	6.60
344352	344352	Hinged Refrac. Holder	3	1.80

With 18 Inch Radial Bowl Reflector and Sol-Lux Diffuser

Mfrs. No. Size Bracket ¾ Inch	1¼ Inch	Description	Shpg. Wt. Lb. Each	Price Each
353461	353462	Complete Unit	20	13.20
		Consists of Four Parts as Follows		
353122	353123	Porcelain Head with Socket and Canopy	8	5.70
335940	335940	18 Inch Radial Bowl Reflector	4	2.70
336063	336063	Sol-Lux Diffuser	5	3.00
344352	344352	Hinged Refrac. Holder	3	1.80

*Lamps are not included. Nominal candle power of series lamps is 1/10 of lumen rating.

PARTS FOR BRACKET SUSPENSION SERIES STREETHOODS



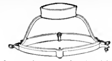
Parts for Bracket Suspension Streethoods

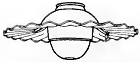
20-inch Flat Radial Reflector for 400, 600, 800 and 1000-Lumen Series Type C Lamps

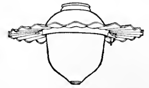
18-inch Radial Bowl Reflector for 400, 600, 800 and 1000-Lumen Series Type C Lamps

20-inch Radial Bowl Reflector with Extension for 2500, 4000 and 6000-Lumen Series Type C Lamps

6½-inch Hinged Refractor Holder

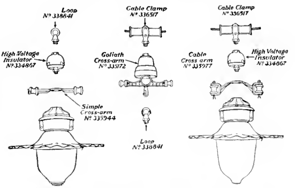

8½-inch Hinged Refractor Holder


18-inch Radial Bowl Reflector with 6½-inch Holophane Skirted Refractor for 400, 600, 800 and 1000-Lumen Series Type C Lamps


18-inch Radial Bowl Reflector with 8½-inch Holophane Superlux Refractor for 2500, 4000 and 6000-Lumen Series Type C Lamps

Mfrs. No.	Description	Shpg. Wt. Lb. Each	Price Each
344349	Poreelain Head with Regent C Socket and ¾ Ineh Canopy....	8	**$5.70**
344350	Poreelain Head with Regent C Socket and 1¼ Inch Canopy....	8	**5.70**
353122	Poreelain Head with Standard Film Soeket and ¾ In. Canopy	8	**5.70**
353123	Porcelain Head with Standard Film Socket and 1¼ In. Canopy	8	**5.70**
337965	Regent C Lamp Holder............	¼	**1.00**
352937	Standard Film Socket.............	1	**1.00**
334746	20 Inch Flat Radial Refleetor..	5	**2.70**
335940	18 Ineh Radial Bowl Reflector	4	**2.70**
336153	20 Ineh Radial Bowl Refleetor with Extension	5	**3.60**
335967	6½ Ineh Holophane Superlux Refractor	5	**4.20**
335980	6½ Inch Holophane Skirted Refractor	5	**4.20**
352939	8½ Ineh Holophane Superlux (Open Type) Refraetor...........	9	**6.60**
252212	8½ Inch Holophane Skirted Refractor	8	**6.60**
336063	8½ Ineh Sol-Lux Diffuser........	5	**3.00**
344352	6½ In. Hinged Refrae. Holder	3	**1.80**
344351	8½ In. Hinged Refrae. Holder	3	**1.80**
335944	Simple Cross Arm, ¾ In. Pipe	1½	**.60**
336639	Locknut for ¾ Inch Pipe.......	......	**.05**
335922	Simple Cross Arm, 1¼ In. Pipe	1½	**.60**
336737	Loeknut for 1¼ Ineh Pipe......	......	**.05**

CUTTER SUSPENSION FITTINGS FOR SERIES STREETHOODS



Interchangeable Parts for Center Suspension Streethoods

The streethoods listed on the preeeding pages may be equipped with various types of suspension fittings.

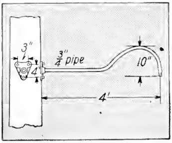
The interehangeability of parts permits a large number of eombinations. For convenienee, the combinations most generally used are illustrated above and listed below.

Standard Paekage Quantity, 10

Mfrs. No.	Description	Shpg. Wt. Lb. Each	Price Each
338841	Loop	½	**$0.25**
344363	Complete Fittings	3½	**.85**
	Consists of Two Parts as Follows		
338841	Loop	½	**.25**
335944	Simple Cross Arm.................	3	**.60**
344364	Complete Fittings	3½	**1.65**
	Consists of Two Parts as Follows		
338841	Loop	½	**.25**
334867	High Voltage Insulator..........	3	**1.40**
344365	Complete Fittings	5	**2.25**
	Consists of Three Parts as Follows		
338841	Loop	½	**.25**
334867	High Voltage Insulator..........	3	**1.40**
335944	Simple Cross Arm.................	1½	**.60**
336517	Cable Clamp............................	3	**.75**
344366	Complete Fittings	6	**1.55**
	Consists of Two Parts as Follows		
336517	Cable Clamp............................	3	**.75**
335977	Cable Cross Arm....................	3	**.80**
344367	Complete Fittings	6	**2.15**
	Consists of Two Parts as Follows		
336517	Cable Clamp............................	3	**.75**
334867	High Voltage Insulator..........	3	**1.40**
344368	Complete Fittings	9	**2.95**
	Consists of Three Parts as Follows		
336517	Cable Clamp............................	3	**.75**
334867	High Voltage Insulator..........	3	**1.40**
335977	Cable Cross Arm....................	3	**.80**
344369	Complete Fittings	13½	**4.95**
	Consists of Three Parts as Follows		
336517	Cable Clamp............................	3	**.75**
335172	Goliath Cross Arm.................	10	**3.95**
338841	Loop	½	**.25**

CUTTER STREETHOOD BRACKETS

TYPE B—¾ Inch Fitting



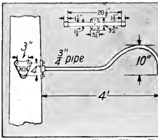
Consists of a 4 foot type B gooseneck of ¾ inch pipe with a 3-hole grooved pole plate, which permits either inner or outer wiring. The holes in pole plate are $\frac{3}{16}$ inch in diameter to take ½ inch lag screws.

Mfrs. No.	Description	Shpg Wt. Lb. Each	Price Each
340758	Complete Bracket	10	**$1.75**
	Consists of Two Parts as Follows		
334742	¾ Inch by 4 Foot Gooseneck	7	**1.15**
334741	Grooved Pole Plate	3	**.60**

TYPE B WITH BRACE ARM

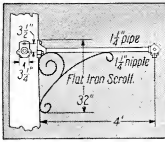
¾ Inch Fitting

The brace arm is an enameled wood arm with metal bound ends and insulators. It is usually attached to the pole above the bracket and guides the wires to the fixture.



Mfrs. No.	Description	Shpg. Wt. Lb. Each	Price Each
344359	Complete Bracket	13	**$2.80**
	Consists of Three Parts as Follows		
334742	¾ Inch by 4 Foot Gooseneck	7	**1.15**
334741	Grooved Pole Plate	3	**.60**
334740	Brace Arm	3	**1.05**

SPARTAN STRAIGHT ARM—¾ Inch Fitting

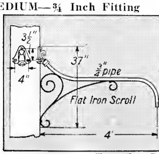


Made up of a straight length of 1¼ inch pipe with ornamental headpiece at outer end, which is equipped with ¾ inch nipple for attaching streethood. The 3 hole pole plate which permits inner wiring is mounted with ½ inch lag screws.

Mfrs. No.	Description	Shpg Wt. Lb. Each	Price Each
336516	Complete Bracket	24	**$6.00**

MAJESTIC MEDIUM—¾ Inch Fitting

Medium weight bracket of ¾ inch pipe with 4 feet overhang. Equipped with wrought iron scroll and grooved pole plate, which permits inner wiring. Three ½ inch lag screws are used in mounting.

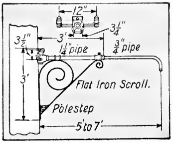


Mfrs. No.	Description	Shpg. Wt. Lb. Each	Price Each
335958	Complete Bracket	15	**$4.20**

Standard Package Quantity, 10

CUTTER STREETHOOD BRACKETS

BOULEVARD TELESCOPE—¾ Inch Fitting

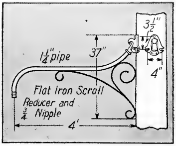


The ¾ inch pipe telescopes into the 1¼ inch pipe and allows for adjustments of 5 to 7 feet in reach from pole. This bracket has a heavy 3 pole cast iron pole plate for inner wiring and cross arm with glass insulators. The knurled set screw in pipe joint and pole step in lower corner of scroll are for convenience of linemen when renewing lamps.

Mfrs. No.	Description	Shpg. Wt. Lb. Each	Price Each
344360	Complete Bracket	39	**$10.10**
	Consists of Four Parts as Follows		
334775	Pole Plate with Cross Arm	9	**2.00**
334778	Boulevard Bracket with Pole Step and Scroll Assembled	20	**5.80**
334779	¾ Inch by 5 Foot Pipe Bend	8	**2.15**
344825	2 Pony Glass Insulators	2	**.15**

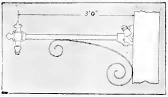
MAJESTIC SENIOR—1¼ Inch Fitting

Consists of a double bend gooseneck of 1¼ inch pipe 4 feet long together with 3 hole grooved pole plate for inner wiring and wrought iron scroll. Lag screws ½ inch in diameter are used for mounting on poles.



Mfrs. No.	Description	Shpg. Wt. Lb. Each	Price Each
335972	Complete Bracket	26	**$9.00**

ARCADIAN—1¼ Inch Fitting



A substantial 3 foot bracket made of 1¼ inch pipe with 3 hole pole plate, fitted with cross arm and glass insulators. An ornamental headpiece with 1¼ inch nipple is used on outer end and simple wrought iron scroll acts as a brace.

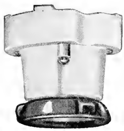
Mfrs. No.	Description	Shpg. Wt. Lb. Each	Price Each
348742	Complete Bracket	20	**$7.40**
	Consists of Three Parts as Follows		
344532	Arcadian Bracket Assembled	9	**5.25**
334775	Pole Plate with Cross Arm	9	**2.00**
344825	2 Pony Glass Insulators	2	**.15**

Standard Package Quantity, 10

CUTTER STREETHOOD SOCKETS

Series Systems

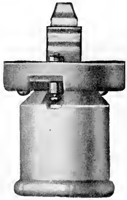
REGENT C FILM SOCKETS



The Regent C Film sockets and receptacles are described in detail on another page. These sockets are for use with porcelain heads No. 338051 and No. 338052 listed on preceding page, or with other styles of streethoods which are arranged for standard hood forks.

Mfrs. No	Description	Shpg. Wt Lbs., Each	Price Each
337960	Receptacle, Mogul Base Socket and Film Holder....	1½	**$1.95**
337961	Receptacle, Mogul Base Socket and Film Holder with ¾ inch Hood Fork, Rigid Male Nipple............	1¾	**2.35**
337962	Receptacle, Mogul Base Socket and Film Holder with ¾-inch Hood Fork, Female Thread	1⅞	**2.50**
337963	Receptacle, Mogul Base Socket and Film Holder with ⅝ inch Hood Fork, Female Thread	1¾	**2.50**
337965	Lamp Socket only with Film Holder......................	¼	**1.00**
334943	Package of 50 Silk Films, puncture voltage 300........	.....	**1.50**

STANDARD FILM SOCKETS



Have a porcelain receptacle with wire terminals and spring clips to hold the projecting fingers of the socket part. These fingers hold the dielectric film. The receptacle fits in the porcelain heads No. 338051 and No. 338052. Screws and nuts for holding the receptacle in place are included with the porcelain heads.

341135	Receptacle and Socket, Mogul Screw Base...........	1¼	**$1.95**
334754	Receptacle only	½	**.95**
352937	Socket part only, Mogul Screw Base	¾	**1.00**
334945	Socket part only, Medium Screw Base	½	**1.00**
334755	Package of 50 Films..........	.....	**2.40**

LAMP GRIP MULTIPLE SOCKETS

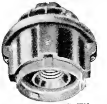
Medium Screw Base

Are equipped with two vertical springs which engage the threads of the lamp collar, re-enforce the socket shells and relieve the tension. These vertical springs grip the lamp base and prevent the lamp from working loose when subjected to vibration and the contraction and expansion caused by the variations in temperature.

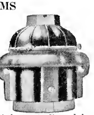
334749	Medium Screw Base..........	1	**$0.85**
334751	Mogul Screw Base.............	1¼	**.95**

CUTTER UNIVERSAL PORCELAIN HEADS

SERIES SYSTEMS



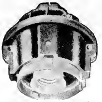
With Regent C Film Socket Style No. 337960



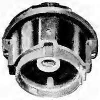
Universal Porcelain Head

The Universal porcelain head consists of a porcelain body or case and canopy. The body is designed on the same general lines as the porcelain heads used in both Regent C and standard streethoods, but the socket is not built in as an integral part.

Each porcelain head is equipped with an iron supporting ring, which grips and locks the reflector. It is so arranged that the reflectors can be installed or removed by the adjustment of only one screw. This screw is so arranged, however, that the weight of the reflector and glassware is not thrown upon it.



With Standard Film Socket Style No. 341135



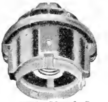
With Medium Screw Socket Style No. 334749

All iron parts are heavily galvanized and painted with one coat of black enamel. The canopy is secured in place by three large screws seated in lead slugs embedded in the porcelain. The top of the canopy is cast hexagonal in shape, to facilitate installing. Canopies are tapped for both ¾-inch pipe and 1¼-inch pipe.

The interior of the head is so arranged that either medium or mogul multiple sockets, as well as Regent C and standard film sockets may be used interchangeably.

At the top, a standard line of suspension fittings in various combinations may be used. Below, any of the standard combinations of reflectors, with or without glassware may be used to make up a complete streethood.

UNIVERSAL PORCELAIN HEADS WITHOUT SOCKETS



With Mogul Screw Socket Style No. 334751

Consist of porcelain body to take either Regent C film socket Style No. 337960 or standard film socket Style No. 341135, medium socket Style No. 334749 or mogul socket Style No. 334751, cast-iron canopy tapped for ¾-inch or 1¼-inch pipe, and adapter ring to fit reflectors with 4-inch standard heel. Sockets are not included and must be ordered separately. See listing on another page.

Mfrs. No	Description	Ship. Wt. Lbs. Each	Price Each
338051	With ¾-inch Canopy, without Socket..................................	8	**$3.75**
338052	With 1¼-inch Canopy, without Socket..................................	8	**3.75**

Order by Manufacturer's Number.

CUTTER MULTIPLE STREETHOODS

For 50, 75, 100 and 150 Watt Types B and C Multiple Lamps*

With 23 Inch Flat Radial Reflector

Mfrs. No. Size Bracket ¾ Inch	Mfrs. No. ½ Inch	Description	Shpg. Wt. Lb. Each	Price Each
344437	344751	Complete Unit	8	$5.45
		Consists of Two Parts as Follows		
353851	353852	Medium Holder Socket with Plain Cap	3	2.75
334746	334746	20 Inch Flat Radial Reflector	5	2.70

For 200 Watt Type C Multiple Lamps*

With 18 Inch Radial Bowl Reflector

336761	344747	Complete Unit	7	5.45
		Consists of Two Parts as Follows		
353851	353852	Medium Holder Socket with Plain Cap	3	2.75
335940	335940	18 Inch Radial Bowl Reflector	4	2.70

With 18 Inch Radial Bowl Reflector and 6½ Inch Holophane Superlux Refractor

344434	344748	Complete Unit	15	11.45
		Consists of Four Parts as Follows		
353851	353852	Medium Holder Socket with Plain Cap	3	2.75
335940	335940	18 Inch Radial Bowl Reflector	4	2.70
335967	335967	6½ Inch Holophane Superlux Refractor	5	4.20
344352	344352	Hinged Refrac. Holder	3	1.80

With 18 Inch Radial Bowl Reflector and 6½ Inch Holophane Skirted Refractor

344435	344749	Complete Unit	15	11.45
		Consists of Four Parts as Follows		
353851	353852	Medium Holder Socket with Plain Cap	3	2.75
335940	335940	18 Inch Radial Bowl Reflector	4	2.70
335980	335980	6½ Inch Holophane Skirted Refractor	5	4.20
344352	344352	Hinged Refrac. Holder	3	1.80

*Lamps are not included.

CUTTER MULTIPLE STREETHOODS

For 200, 300, 400 and 500 Watt Type C Multiple Lamps*

With 20 Inch Radial Bowl Reflector With Extension for Bare Lamps

Mfrs. No. Size Bracket ¾ Inch	Mfrs. No. ½ Inch	Description	Shpg. Wt. Lb. Each	Price Each
344442	344756	Complete Unit	9	$6.85
		Consists of Two Parts as Follows		
353853	353854	Mogul Holder Socket with Plain Cap	4	3.25
336153	336153	20 Inch Radial Bowl Reflector with Extension	5	3.60

With 18 Inch Radial Bowl Reflector and 8½ Inch Holophane Superlux Refractor

344438	344752	Complete Unit	19	14.35
		Consists of Four Parts as Follows		
353853	353854	Mogul Screw Holder Socket, Plain Cap	4	3.25
335940	335940	18 Inch Radial Bowl Reflector	4	2.70
352939	352939	8½ Inch Holophane Superlux Refractor	9	6.60
344351	344351	Hinged Refrac. Holder	3	1.80

With 18 Inch Radial Bowl Reflector and 8½ Inch Holophane Skirted Refractor

344439	344753	Complete Unit	19	14.35
		Consists of Four Parts as Follows		
353853	353854	Mogul Screw Holder Socket, Plain Cap	4	3.25
335940	335940	18 Inch Radial Bowl Reflector	4	2.70
252212	252212	8½ Inch Holophane Skirted Refractor	8	6.60
344351	344351	Hinged Refrac. Holder	3	1.80

With 18 Inch Radial Bowl Reflector and 8½ Inch Sol-Lux Diffuser

344441	344755	Complete Unit	16	10.75
		Consists of Four Parts as Follows		
353853	353854	Mogul Holder Socket with Plain Cap	4	3.25
335940	335940	18 Inch Radial Bowl Reflector	4	2.70
336063	336063	8½ Inch Sol-Lux Diffuser	5	3.00
344351	344351	Hinged Refrac. Holder	3	1.80

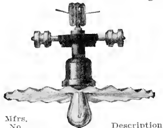
*Lamps are not included.

CUTTER MULTIPLE STREETHOODS

WITH CABLE GRIP SUSPENSION

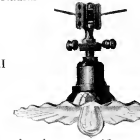
For 40, 60, 75, 100, 150 and 200 Watt Types B and C Multiple Lamps*

Standard Package Quantity, 10



With 20 Inch Flat Radial Reflector

Mfrs. No.	Description	Shpg. Wt. Lb. Each	Price Each
344463	Complete Streethood	13	**$7.40**
	Consists of Four Parts as Follows		
336517	Cable Clamp	3	**.75**
336527	Standard Iron Cross Arm	3	**1.90**
335847	Medium Holder-Socket with Plain Cap	2	**2.05**
334746	20 Inch Flat Radial Reflector	5	**2.70**



With 18 Inch Radial Bowl Reflector

Mfrs. No.	Description	Shpg. Wt. Lb. Each	Price Each
344459	Complete Streethood	12	**7.40**
	Consists of Four Parts as Follows		
336517	Cable Clamp	3	**.75**
336527	Standard Iron Cross Arm	3	**1.90**
335847	Medium Holder-Socket with Plain Cap	2	**2.05**
335940	18 Inch Radial Bowl Reflector	4	**2.70**

With 18 Inch Radial Bowl Reflector and 6½ Inch Holophane Superlux Refractor

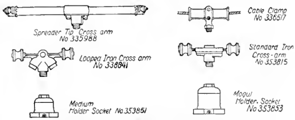
Mfrs. No.	Description	Shpg. Wt. Lb. Each	Price Each
344460	Complete Streethood	20	**13.40**
	Consists of Six Parts as Follows		
336517	Cable Clamp	3	**.75**
336527	Standard Iron Cross Arm	3	**1.90**
335847	Medium Holder-Socket with Plain Cap	2	**2.05**
335940	18 Inch Radial Bowl Reflector	4	**2.70**
335967	6½ Inch Holophane Superlux Refractor	5	**4.20**
344352	Hinged Refractor Holder	3	**1.80**

With 18 Inch Radial Bowl Reflector and 6½ Inch Holophane Skirted Refractor

Mfrs. No.	Description	Shpg. Wt. Lb. Each	Price Each
344461	Complete Streethood	20	**13.40**
	Consists of Six Parts as Follows		
336517	Cable Clamp	3	**.75**
336527	Standard Iron Cross Arm	3	**1.90**
335847	Medium Holder-Socket with Plain Cap	2	**2.05**
335940	18 Inch Radial Bowl Reflector	4	**2.70**
335980	6½ Inch Skirted Holophane Refractor	5	**4.20**
344352	Hinged Refractor Holder	3	**1.80**

*Lamps are not included.

CUTTER PARTS FOR MULTIPLE STREETHOODS



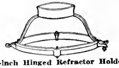
Interchangeable Parts for Multiple Streethoods

20-inch Flat Radial Reflector for 40, 60 and 75-Watt Type B Multiple Lamps

18-inch Radial Bowl Reflector for 100, 150 and 200-Watt Type C Multiple Lamps

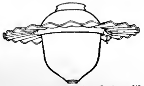
20-inch Radial Bowl Reflector with Extension for 200, 300, 400 and 500-Watt Type C Multiple Lamps

6½-inch Hinged Refractor Holder



8½-inch Hinged Refractor Holder

18-inch Radial Bowl Reflector with 6½-inch Holophane Skirted Refractor for 100 and 150-Watt Type C Multiple Lamps



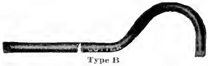
18-inch Radial Bowl Reflector with 8½-inch Holophane Superlux Refractor for 200, 300, 400 and 500-Watt Type C Multiple Lamps

Mfrs. No.	Description	Shpg. Wt Lb. Each	Price Each
353851	Medium Holder-Socket with Plain Cap for ¾ Inch Pipe	2	**$2.75**
353853	Mogul Holder-Socket with Plain Cap for ¾ Inch Pipe	4	**3.25**
336213	Mogul Screw to Medium Screw Adjuster	½	**1.30**
334746	20 Inch Flat Radial Reflector	5	**2.70**
335940	18 Inch Radial Bowl Reflector	4	**2.70**
336153	20 Inch Radial Bowl Reflector with Extension	5	**3.60**
335967	6½ Inch Holophane Bowl Refractor	5	**4.20**
335980	6½ Inch Holophane Skirted Refractor	5	**4.20**
352939	8½ Inch Holophane Superlux Refractor	9	**6.60**
252212	8½ Inch Holophane Skirted Refractor	8	**6.60**
336063	8½ Inch Sol-Lux Diffuser	5	**3.00**
344352	6½ In. Hinged Refrac. Holder	3	**1.80**
344351	8½ In. Hinged Refrac. Holder	3	**1.80**
353815	Looped Iron Cross Arm	3	**2.50**
338841	Looped Iron Cross Arm	3	**2.50**
336517	Cable Clamp	3	**.75**
353815	Standard Iron Cross Arm	3	**2.25**
335988	Spreader Tip Cross Arm	3	**2.05**
334906	Iron Pulley Arm	6	**1.55**
334905	Adjusting Clamps, Per Pair	½	**.40**

CUTTER PARTS FOR STREETHOOD BRACKETS

GOOSENECKS

Type A



Type B

Mfrs. No. Type A	Mfrs. No. Type B	Lgth. Ft.	Size In.	Std. Pkg.	Wt.Lbs. Each	Price Each
334965	334805	3	½	10	2⅞	$0.90
334968	334885	4	½	10	3⅞	1.00
334866	334969	5	½	10	4⅞	1.10
334970	334971	3	¾	10	3¾	.95
344902	334742	4	¾	10	4¾	1.15
344972	334868	5	¾	10	5¾	1.30

No. 334881

No. 334741

CURVED POLE PLATES
Grooved

Mfrs. No.	Pipe In.	Std. Pkg.	Wt.Lb. Each	Price Each
334881	½	10	1¼	$0.35
334741	¾	10	2¼	.60

WALL FLANGES

Mfrs. No.		Pipe In	Std. Pkg.	Wt.Lb. Each	Price Each
334791	Threaded	½	10	1	$0.40
334884	To slip over	½	10	1	.40
334963	Threaded	¾	10	2	.55
334890	To slip over	¾	10	2	.55

No. 334890

No. 336047

CORNER PLATES

Mfrs. No.	Size Pipe In.	Std. Pkg.	Wt.Lbs. Each	Price Each
336047	½	10	2½	$1.20
336046	¾	10	2½	1.30

HOOD INSULATORS

Tapped for ¾ inch pipe above.

Mfrs. No.	Size Stud In.	Std. Pkg.	Wt.Lbs. Each	Price Each
334869	½	10	2½	$1.50
334867	¾	10	2½	1.40

No. 334369

ANGLE CHANGE BRACE ARMS

Made of cast iron with curved pole plate and fixed pins. May be used on front or back of pole.

Mfrs. No	Description	Std. Pkg.	Wt.Lb. Each	Price Each
335985	Without Glass Insulators	10	4	$1.50
341155	With Glass Insulators......	10	6	1.65

CUTTER PARTS FOR STREETHOOD BRACKETS

STANDARD BRACE ARMS

Made of enameled wood with metal bound ends. Furnished complete with curved pole plate and insulators.

Mfrs. No	Std. Pkg	Wt.Lbs. Each	Price Each
334740	10	3	$1.05

STANDARD IRON CROSS ARMS

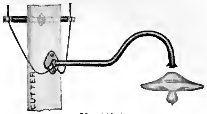
Made of cast iron with porcelain insulators. Has wire holes beneath. Tapped for either ½ inch or ¾ inch pipe above, ¾ inch nipple below. Complete with nipple.

Mfrs. No		Std. Pkg.	Wt.Lbs. Each	Price Each
353814	For ½ Inch Pipe........	10	3	$2.25
353815	For ¾ Inch Pipe........	10	3	2.25

SIMPLE CROSS ARMS

Mfrs. No		Std. Pkg.	Wt.Lbs. Each	Price Each
335944	For ¾ Inch Pipe	10	1½	$0.60
335922	For 1¼ Inch Pipe	10	1½	.60
344370	With ¾ Inch Locknut	10	1½	.65
344372	With 1¼ Inch Locknut	10	1½	.65

BRACKETS FOR INVERTED CONE STREETHOODS



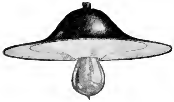
No. 341549

Standard and Inner-Wired brackets are 3-foot goosenecks of ½ inch pipe with pole plate and cross arm. Majestic Junior and Spartan Junior are similar to Majestic Medium and Spartan Straight Arm brackets, listed elsewhere, but made of ½ inch pipe; extends 3 feet from pole.

Mfrs. No	Description	Std. Pkg.	Wt.Lb. Each	Price Each
	Standard			
341530	With Brace Arm..........	10	10	$4.55
341531	Without Brace Arm....	10	7	3.50
	Inner-Wired			
341548	With Brace Arm........	10	8½	2.65
341549	Without Brace Arm....	10	5½	1.60
	Majestic Junior			
341550	With Hood Flange......	10	15¼	4.25
335981	Without Hood Flange	10	15	3.90
	Spartan Junior			
341551	With Hood Flange......	10	12¼	3.20
335905	Without Hood Flange	10	12	2.85

INVERTED CONE STREETHOODS

For 400, 600, 800 and 1000 Lumen
Type C Series Lamps
200 Watt and Smaller Multiple Lamps
COMPLETE STREETHOODS



Consist of two enameled steel spinnings, hood fork and socket. The upper pieee of the hood is made in two sizes, 18-ineh and 22-inch diameter. Lower pieee of refleetor is interchangeable with either size hood. Two finishes are used, baked paint enamel and poreelain enamel. Top of streethood is green and refleeting surface white. A ¾-ineh male nipple is a part of the hood fork extending through top of hood. When the inverted cone streethood is to be mounted on a braeket a hood flange listed below should be ordered.

18-Inch Hood

Paint Enamel Finish				Porcelain Enamel		
Mfrs. No.	Type Socket	Wt. Lbs.	Price Each	Mfrs. No	Wt. Lbs.	Price Each
341315	Med. Screw	5½	**$3.95**	**341319**	6¾	**$5.55**
341316	Mog. Screw	5¾	**4.05**	**341320**	7	**5.65**
341317	Reg. Film	6	**5.05**	**341321**	7¼	**6.65**
341331	Std. Film	6	**5.05**	**341332**	7¼	**6.65**
341318	No Socket	4¾	**3.10**	**341322**	6	**4.70**
		22-Inch Hood				
341323	Med. Serew	7¾	**4.35**	**341327**	9¾	**6.80**
341324	Mog. Serew	8	**4.45**	**341328**	10	**6.90**
341325	Reg. Film	8¼	**5.45**	**341329**	10¼	**7.90**
341333	Std. Film	8¼	**5.45**	**341334**	10¼	**7.90**
341326	No Soeket	7	**3.50**	**341330**	9	**5.95**

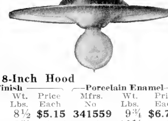
EXTRA PARTS

Mfrs. No.	Description	Wt. Lbs.	Price Each
335939	Hood Flange for ½-In. Pipe	½	**$0.35**
335938	Hood Flange for ¾-In. Pipe	½	**.35**
335945	18-In. Hood, Paint Enameled	2⅝	**1.20**
335948	18-In. Hood, Poreelain Enameled	3	**2.25**
335951	22-In. Hood, Paint Enameled	4¾	**1.60**
335952	22-In. Hood, Porcelain Enameled	6¼	**3.50**
335954	Reflector, Paint Enameled..	2⅛	**1.35**
335955	Reflector, Porcelain Enameled	2⅛	**1.90**
335959	Hood Fork, ¾-In. Rigid Nipple	¼	**.40**
341336	Refleetor Supporting Bolts, per pair	....	**.15**

Standard Package Quantity, 10.

LOOPED HOODS

A looped hood consists of an inverted eone streethood body and a looped cross arm. Standard Package Quantity, 10.

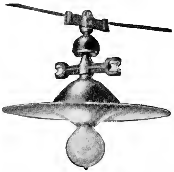


18-Inch Hood

Paint Enamel Finish				Porcelain Enamel		
Mfrs. No	Type Socket	Wt. Lbs.	Price Each	Mfrs. No	Wt. Lbs.	Price Each
341556	Med. Serew	8½	**$5.15**	**341559**	9¾	**$6.75**
341557	Mog. Serew	8¾	**5.25**	**341560**	10¼	**6.85**
341558	Reg. Film	10¼	**6.45**	**341561**	10¼	**8.05**
		22-Inch Hood				
341563	Med. Serew	10¾	**5.55**	**341566**	12¾	**8.00**
341564	Mog. Serew	11	**5.65**	**341567**	13	**8.10**
341565	Reg. Film	11¼	**6.85**	**341568**	13¼	**9.30**

INVERTED CONE STREETHOODS

For 400, 600, 800 and 1000 Lumen
Type C Series Lamps
200 Watt and Smaller Multiple Lamps
CABLE GRIP SUSPENSION



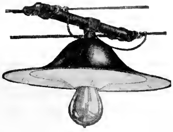
A cable grip extension streethood is a eenter span fixture with cross arm, insulator and cable elamp supporting an inverted cone streethood.

18-Inch Hood

Paint Enamel Finish				Porcelain Enamel		
Mfrs. No.	Type Socket	Wt. Lbs.	Price Each	Mfrs. No	Wt. Lbs.	Price Each
341569	Med. Serew	14	**$7.20**	**341572**	15¼	**$8.80**
341570	Mog. Screw	14½	**7.30**	**341573**	15½	**8.90**
341571	Reg. Film	14½	**8.50**	**341574**	15¾	**10.10**
		22-Inch Hood				
341575	Med. Serew	16½	**7.60**	**341578**	18¼	**10.05**
341576	Mog. Serew	16¼	**7.70**	**341579**	18½	**10.15**
341577	Reg. Film	16¾	**8.90**	**341580**	18¾	**11.35**

Standard Package Quantity, 10.

ALWAYS-LEVEL STREETHOODS



The two wires leading from the brace arm to the hood make up one side of the suspension, while cords passing over covered pulleys form the other side. Adjusting clamps, one at the end of each cord, are independently drawn up taut and loeked together. To make up an Always-Level streethood, order a Center Hood and one iron pulley arm, one iron braee arm and two adjusting clamps as listed below. The hood is the center part only of the Always-Level Streethood and eonsists of a spreader tip cross arm and an inverted cone streethood. Priees do not include rope, lamps or wires.

PARTS FOR ALWAYS-LEVEL STREETHOODS

Mfrs. No.	Description	Shpg. Wt. Lbs. Each	Price Each
334904	Iron Pulley Arm................	6	**$2.35**
334906	Iron Brace Arm..................	6	**1.55**
334905	Adjusting Clamps Per Pair	½	**.40**

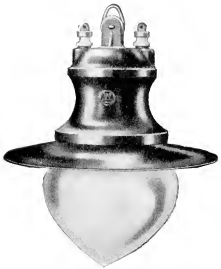
CENTER HOODS

18-Inch Hood

Paint Enamel Finish				Porcelain Enamel		
Mfrs No	Type Socket	Wt. Lbs.	Price Each	Mfrs No	Wt. Lbs.	Price Each
341581	Med. Serew	11	**$6.00**	**341584**	12¼	**$7.60**
341582	Mog. Serew	11¼	**6.10**	**341585**	12½	**7.70**
341583	Reg. Film	11½	**7.30**	**341586**	12¾	**8.90**
		22-Inch Hood				
341587	Med. Serew	13¼	**6.40**	**341590**	15¼	**8.85**
341588	Mog. Serew	13½	**6.50**	**341591**	15½	**8.95**
341589	Reg. Film	13¾	**7.70**	**341592**	15¾	**10.15**

Standard Paekage Quantity, 10.

WESTINGHOUSE DUST-PROOF LUXSOLITE PENDANTS
TYPE SP—SINGLE PIECE



Type SP Luxsolite Pendant with Luxsolite Globe

Same general construction as the CI pendant except that the body is cast in a single piece. The casing is shorter and does not have sufficient space for an auto-transformer; it is, therefore, limited to series film-cutout and multiple service.

FOR STRAIGHT SERIES LAMPS
2500-6000 LUMENS

With Regent Series Film Socket and Rectilinear Luxsolite Globe

Mfrs. No.	Description	Shpg. Wt. Lbs., Each	Price Each
351458	Complete Unit ..... Consists of 4 parts as follows:	48½	**$20.60**
353791	S. P. Body with Film Socket and Globe Seat....	36½	**13.50**
353029	Luxsolite Globe Holder....	1½	**.80**
334798	20 Inch Reflector.....	4	**2.00**
350572	Rectilinear Luxsolite Globe	6½	**4.30**

With Regent Series Film Socket and 8½ Inch Superlux Refractor

353421	Complete Unit ..... Consists of 4 parts as follows:	51	**23.10**
353791	S. P. Body with Film Socket and Globe Seat....	36½	**13.50**
353769	Refractor Ring.....	1½	**.80**
334798	20 Inch Reflector.....	4	**2.00**
352940	8½ Inch Superlux Refractor	9	**6.90**

With Regent Series Film Socket and 8½ Inch Skirted Refractor

351456	Complete Unit ..... Consists of 4 parts as follows:	50½	**23.10**
353791	S. P. Body with Film Socket and Globe Seat....	36½	**13.50**
353769	Refractor Ring.....	1½	**.80**
334798	20 Inch Reflector.....	4	**2.00**
336793	8½ Inch Skirted Refractor	8½	**6.90**

WESTINGHOUSE DUST-PROOF LUXSOLITE PENDANTS
TYPE SP—SINGLE PIECE

Type SP Luxsolite Pendant with Skirted Refractor

Casing is made of gray cast iron, galvanized and finished with black asphaltum paint. The socket support is adjustable and may be varied for different sizes of lamps. Standard Luxsolite binding posts and reflector as shown are regularly furnished. The same glassware listed with the type CI pendants may be used.

FOR MULTIPLE LAMPS, 300-1000 WATTS*

With Mogul Multiple Socket and Rectilinear Luxsolite Globe

Mfrs. No.	Description	Shpg. Wt. Lbs., Each	Price Each
351457	Complete Unit ..... Consists of 4 parts as follows:	47½	**$19.60**
353792	S. P. Body with Mogul Multiple Socket and Globe Seat	35½	**12.50**
353029	Luxsolite Globe Holder....	1½	**.80**
334798	20 Inch Reflector.....	4	**2.00**
350572	Rectilinear Luxsolite Globe	6½	**4.30**

With Mogul Multiple Socket and 8½ Inch Skirted Refractor

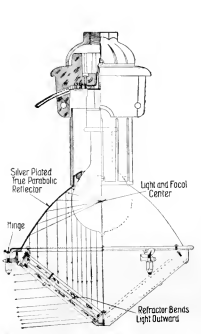
351455	Complete Unit ..... Consists of 4 parts as follows:	49½	**22.20**
353792	S. P. Body with Mogul Multiple Socket and Globe Seat	35½	**12.50**
353769	Refractor Ring.....	1½	**.80**
334798	20 Inch Reflector.....	4	**2.00**
336793	8½ Inch Skirted Refractor	8½	**6.60**

With Mogul Multiple Socket and 8½ Inch Superlux Refractor

353422	Complete Unit..... Consists of 4 parts as follows:	50	**22.20**
353792	S. P. Body with Mogul Multiple Socket and Globe Seat	35½	**12.50**
353769	Refractor Ring	1½	**.80**
334798	20 Inch Reflector.....	4	**2.00**
352940	8½ Inch Superlux Refractor	9	**6.60**

*750 and 1000 watt lamps can be used only in pendants with Luxsolite Globes.

WESTINGHOUSE HIGHWAY LIGHTING UNIT



Sectional View—Highway Lighting Unit

The enormous increase in the use of highways for long distance traveling by trucks and automobiles, and the ever-increasing number of accidents at night, bring out the importance of the proper lighting of the more important thoroughfares by some means other than by the headlights of the vehicles themselves.

The proper lighting of highways is accomplished by fulfilling two equally important conditions: 1—Providing a clear view of the whole roadway for a considerable distance ahead of the car. 2—Eliminating glare within the range of vision of the driver. The importance of the first condition has led to the extensive use of high-candle-power headlights and adjustable searchlights. These devices are absolutely essential until a more satisfactory system of lighting the roads is provided. As a matter of fact, they would accomplish the desired results, if all traffic were moving in one direction. However, this is seldom, if ever, the case and their use entirely defeats the second essential condition of safe travel at night.

Any bare light source directly within the driver's range of vision, even though at a considerable distance ahead, decreases his acuity of vision to such an extent that the possibility of accident is materially increased. The driver facing the high candle-power beam of the automobile headlight is rendered practically blind as far as discernment of the road surface and other objects is concerned. The practice of dimming headlights in passing cars is becoming almost universal, but it does not entirely relieve the trouble. Ordinarily, the dim headlight is not of sufficient intensity to light the road properly at a time when good light is of supreme importance.

A lighting system that will fulfill the two above mentioned essential conditions must necessarily contain some very special features. Naturally, the most important factor in the system is the lighting unit which must be especially designed for the purpose.

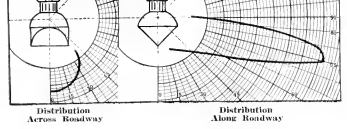
The recently developed highway lighting unit has served to meet these exacting requirements. It consists essentially of a porcelain housing which contains the series socket for a type C lamp, a reflector and a double set of refracting prisms. The unit is arranged for suspension from a series of interchangeable fittings to be fastened to brackets, mast arms, or span wires, as mounting conditions require. The reflector is made of steel highly polished and lacquered on the inside. Its shape is parabolic and so arranged with relation to the refractor prisms that all of the light is thrown in a direction parallel to the roadway. Most of the light is controlled by the upper parabolic reflector which redirects the rays vertically downward upon the two refracting prisms and thence to the road surface in two directions only.

Another important feature of this unit is the angle of cut-off, which eliminates glare. Practical mounting heights do not permit the unit to be placed above the driver's range of vision so it is very important that his eyes be shielded from the high intensity of the light from the lamp. This is accomplished by positioning the edge of the reflector so that the light in a line parallel to the direction of travel is cut off at a direct angle of 14 degrees below the horizontal—the angle which has been determined by exhaustive tests to be the most practical.

Reflections from polished road surfaces are just as disturbing to the eyes as direct light from the lighting unit itself. This reflector cuts off all light rays which would otherwise be reflected to the driver's eyes from the road surface or from the mirage-light mirror so often appearing upon the road surface during the summer season.

The chief results to be expected from a properly lighted highway are a decided decrease in the number of road accidents and a marked increase in the comfort and pleasure of night traveling. The prevention of accidents on the highways is of such far reaching importance that every effort to minimize them should be given the utmost consideration.

Highway Lighting Unit



Distribution Across Roadway

Distribution Along Roadway

List price includes fixture with 1¼-inch canopy and standard film socket.

For 2500, 4000 and 6000 Lumen Straight Series Lamps*

Mfrs Nos.	Description	Wt Lbs	Price Each
351452	Complete Unit.....	100	**$45.00**
	Consists of two parts:		
353734	Swivel Bracket.....	25	**3.00**
353368	Highway Lighting Fixture	75	**42.00**

This unit can be furnished with multiple socket at same price. Order by No. 354024.

*Lamps not included.

CUTTER STREET LIGHTING EQUIPMENT

Triangle

TRIANGLES

As furnished with Junior, Long Junior and inner rope mast arms.

For 6, 8 and 12 Ft. Mast Arms

Mfrs. No.	Std. Pkg.	Wt. Lbs. Each	Price Each
335106	10	8	$1.30

For 14, 15, 16, 18 and 20 Ft. Mast Arms

335117	10	8	1.80

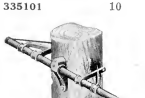
STRAIN ARMS

As furnished on the Junior and Cadet mast arms. Made of wrought iron with a east iron pole plate.

Strain Arm

Mfrs. No.	Std. Pkg.	Wt. Lbs. Each	Price Each
335101	10	8	$1.20

DOUBLE-BRACED STRAIN ARMS


Double-Strain Arm

As furnished on Long Junior mast arms. Longer than regular strain arms and have side braces to prevent rocking in high winds.

Mfrs. No.	Std. Pkg.	Wt. Lbs. Each	Price Each
335111	10	8	$2.70

LAMP-SUPPORTING PULLEYS

Holds the lamp when raised and releases it when about to be lowered. Has a long swivel clamp to fit any suspension wire or cable and a malleable iron clamp knob to hold the lamp. On raising the lamp this knob is engaged by the pulley and takes all the strain off the rope. Another pull at the rope guides the knob out so that the lamp can be readily lowered. The action is automatic; clamp any size rope to ½ inch.

Lamp Supporting Pulley with Clamp Knob

With Clamp Knob Only

Mfrs. No.	Std. Pkg.	Wt. Lbs. Each	Price Each
340768	10	11	$2.95
With Triple Insulation Arm			
340770	10	15	5.55
With Goliath Cross Arm			
344418	10	19	6.95
Cable Clamp Only			
334787	10	2	.65
Pulley Only			
335091	10	6	1.50

Note:—For galvanizing with final coat of black enamel, add 50%.

CUTTER STREET LIGHTING EQUIPMENT

Clamp Knob

CLAMP KNOBS

Clamps any size rope up to ½ inch.

With Hook Only

Mfrs. No.	Std. Pkg.	Wt. Lbs. Each	Price Each
353916	10	2	$0.80
With Triple Insulating Arm			
340789	10	6	3.40
With Goliath Cross Arm			
344421	10	10	4.80

CEILING PULLEYS

A form of the lamp supporting pulley with a plate for use on bridges or under beams in shops or yards.

Ceiling Pulley

With Clamp Knob Only

Mfrs. No.	Std. Pkg.	Wt. Lbs. Each	Price Each
340795	10	12	$3.35
With Triple Insulation Arm			
340796	10	16	5.95
With Goliath Cross Arm			
344422	10	20	7.35

Swivel Pole Pulley

SWIVEL POLE PULLEYS

Weatherproof, swiveled so that it can swing sideways and keep in line with the hoisting rope. Has a strong malleable iron pole plate.

Mfrs. No.	Std. Pkg.	Wt. Lbs. Each	Price Each
334987	10	4	$1.35

JUMBO POLE PULLEYS

Similar to the above, but larger, to take ¾ inch rope.

Mfrs. No.	Std. Pkg.	Wt. Lbs. Each	Price Each
335168	10	5½	$1.75

INTERCHANGEABLE PULLEYS

Weatherproof. Universal clamp made of malleable iron, which will grip any standard size of suspension wire or cable. By taking out the two bolts the clamp can be opened out so as to form a wall plate, which fits the curved surface of a pole and which is easily fastened in place by lag screws. When so used it becomes similar in action to the swivel pole pulley.

Interchangeable Pulley

Mfrs. No.	Std. Pkg.	Wt. Lbs. Each	Price Each
335170	10	6	$1.60

JUMBO CHANGEABLE PULLEYS

Similar to above, but to take ¾ inch rope.

335171	10	5½	2.00

Note:—For galvanizing with final coat of black enamel, add 50%.

CUTTER STREET LIGHTING EQUIPMENT

POLE LINE MATERIAL

POLE LOCKS

Pole Lock

Has the keyhole at the bottom and not at the top where the rain and sleet would drive into it. The double catch makes it non-pickable; back fits either wall or pole; casting makes it weatherproof. One key free with every ten locks. Galvanized.

Mfrs. No.	Std. Pkg.	Wt. Lbs. Each	Price Each
335211	10	1½	**$1.25**
Extra Key			
335212	10	½	**.15**

ROPE CLEATS

Has the edges rounded so as not to cut the rope. Galvanized.

Mfrs. No.	Std. Pkg.	Wt. Lbs. Each	Price Each
340811	10	1	**$0.65**

Rope Cleat

Chain Clamp

CHAIN CLAMPS

A neat, secure fastening, enabling the end of the hoisting chain to be locked to the pole. Made for No. 1 or No. 3 Oncida chain. Galvanized.

Mfrs. No.	Std. Pkg.	Wt. Lbs. Each	Price Each
335220	10	½	**$0.45**

ROPE CLAMPS

Made of malleable iron, galvanized. Will readily clamp any size rope up to ⅝ inch, enabling the end of the hoisting rope to be locked at the pole.

Mfrs. No.	Std. Pkg.	Wt. Lbs. Each	Price Each
335216	10	¾	**$0.45**
For ½ Inch Rope			
335218	10	¾	**.90**

Rope Clamp

Note:—Galvanizing includes final coat of black enamel.

TRIMMER'S ROPE

A 30 foot rope with snap hook at one end and six rings clamped at any desired interval, near the other end so as to accommodate lamps hung at varying heights.

Mfrs. No.	Std. Pkg.	Wt. Lbs. Each	Price Each
335227	10	4	**$5.50**

CUTTER STREET LIGHTING EQUIPMENT

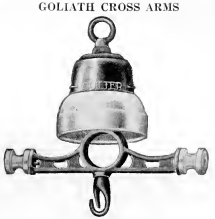
TRIPLE INSULATION ARMS

Triple Insulation Arm

Have a high voltage insulator above an enameled wood arm, thus giving a triple insulation between the line wire and the supporting ring. The arm is coated with a baked enamel and has its ends bound by strong metal ferrules to prevent their splitting. For all high voltage and alternating series lamps. Galvanized.

Mfrs. No.	Std. Pkg.	Wt. Lbs. Each	Price Each
337379	10	4	**$2.60**

GOLIATH CROSS ARMS



Goliath Cross Arm

An insulating cross arm have both the wire supports and the lamp hook insulated from the support by a jupiter insulator. The cross arm is of iron, fitted with porcelain knobs for supporting the line wires and a sister hook for the lamp. Galvanized.

Mfrs No.	Std. Pkg	Wt. Lbs. Each	Price Each
344431	10	8	**$4.00**

GRIP ARMS

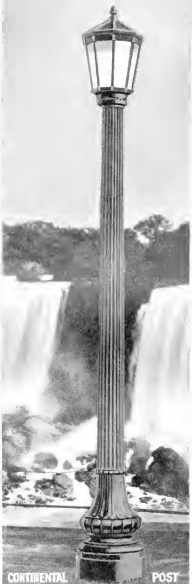
Grip Arm

Consists of the plain arm with a U bolt for clamping same to 1¼ inch bore iron piping as used on mast arms, outriggers and brackets. Galvanized.

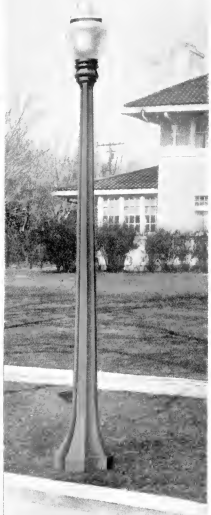
Mfrs No.	Std. Pkg	Wt. Lbs. Each	Price Each
335205	10	1¾	**$1.25**

WESTINGHOUSE ORNAMENTAL STREET LIGHTING

EDGEWATER POST WITH PARAGON RECTILINEAR TOP



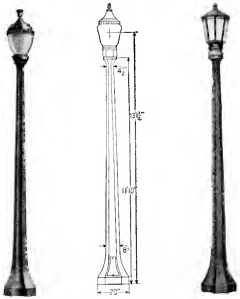
CONTINENTAL POST WITH OCTAGONAL REFLECTOLUX TOP



ARCADIAN POST WITH SOL-LUX TOP

CUTTER SINGLE-LIGHT POSTS

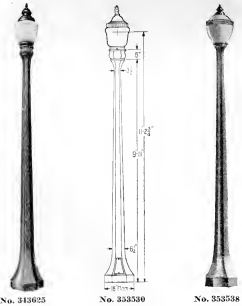
ARCADIAN DESIGN



No. 353508 No. 353477 No. 353498

Furnished with Following Tops
Sol-Lux Senior Top—Metal or Glass Canopy
Meridian Senior Top
Octagonal Senior Top
Octagonal Junior Top
Egyptian Senior Top—Metal or Glass Canopy
Pagoda Top

ARCADIAN JUNIOR DESIGN

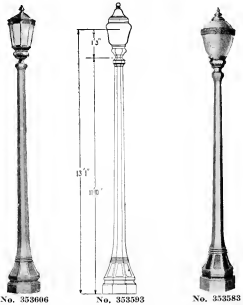


No. 343625 No. 353530 No. 353538

Furnished with Following Tops
Sol-Lux Senior Top—Metal or Glass Canopy
Meridian Junior Top
Octagonal Junior Top
Egyptian Junior Top—Metal or Glass Canopy
Complete information and prices on request.

CUTTER SINGLE-LIGHT POSTS

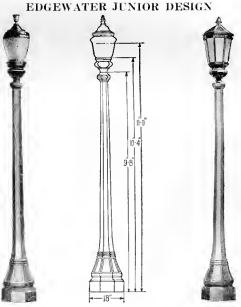
EDGEWATER DESIGN



No. 353606 No. 353593 No. 353583

Furnished with Following Tops
Sol-Lux Senior Top—Metal or Glass Canopy
Meridian Senior Top
Octagonal Senior Top
Octagonal Junior Top
Egyptian Senior Top—Metal or Glass Canopy
Pagoda Top

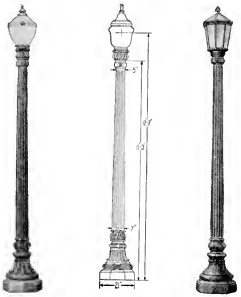
EDGEWATER JUNIOR DESIGN



No. 353644 No. 353624 No. 353636

Furnished with Following Tops
Sol-Lux Junior Top—Metal or Glass Canopy
Meridian Junior Top
Octagonal Junior Top
Egyptian Junior Top—Metal or Glass Canopy
Complete information and prices on request.

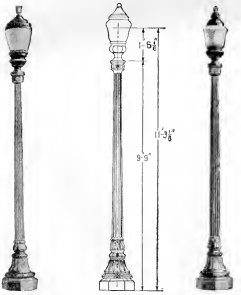
CUTTER SINGLE-LIGHT POSTS
COMMERCIAL DESIGN



No. 353656 No. 353651 No. 353666

Furnished with Following Tops
Sol-Lux Senior Top—Metal or Glass Canopy
Meridian Senior Top
Octagonal Senior Top
Octagonal Junior Top
Egyptian Senior Top—Metal or Glass Canopy
Pagoda Top

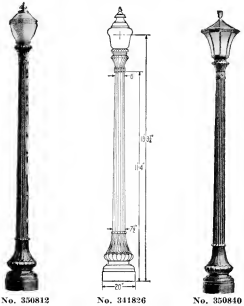
COMMERCIAL JUNIOR DESIGN



No. 353720 No. 353700 No. 353694

Furnished with Following Tops
Sol-Lux Junior Top—Metal or Glass Canopy
Meridian Junior Top
Octagonal Junior Top
Egyptian Junior Top—Metal or Glass Canopy
Complete information and prices on request.

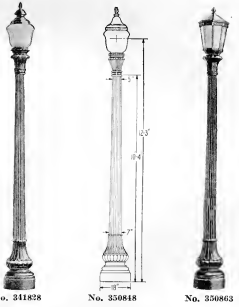
CUTTER SINGLE-LIGHT POSTS
CONTINENTAL DESIGN



No. 350812 No. 341826 No. 350840

Furnished with Following Tops
Sol-Lux Senior Top—Metal or Glass Canopy
Meridian Senior Top
Octagonal Senior Top
Octagonal Junior Top
Egyptian Senior Top—Metal or Glass Canopy
Pagoda Top

CONTINENTAL MEDIUM DESIGN

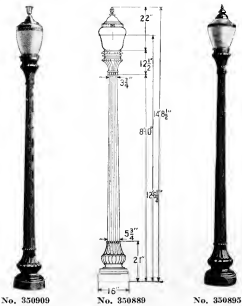


No. 341828 No. 350848 No. 350863

Furnished with Following Tops
Sol-Lux Senior Top—Metal or Glass Canopy
Meridian Senior Top
Octagonal Senior Top
Octagonal Junior Top
Egyptian Senior Top—Metal or Glass Canopy
Pagoda Top
Complete information and prices on request.

CUTTER SINGLE-LIGHT POSTS

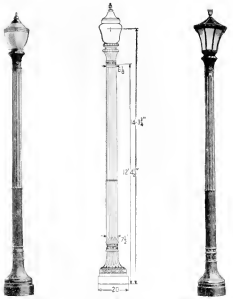
CONTINENTAL JUNIOR DESIGN



No. 350909 No. 350889 No. 350895

Furnished with Following Tops
Sol-Lux Junior Top—Metal or Glass Canopy
Meridian Junior Top
Octagonal Junior Top
Egyptian Junior Top—Metal or Glass Canopy

CAPITOL DESIGN

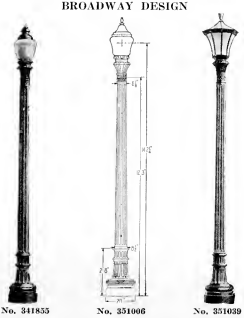


No. 350929 No. 350944 No. 350957

Furnished with Following Tops
Sol-Lux Senior Top—Metal or Glass Canopy
Meridian Senior Top
Octagonal Senior Top
Octagonal Junior Top
Egyptian Senior Top—Metal or Glass Canopy
Pagoda Top
Complete information and prices on request.

CUTTER SINGLE-LIGHT POSTS

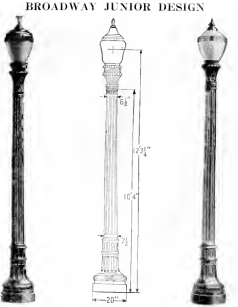
BROADWAY DESIGN



No. 341855 No. 351006 No. 351039

Furnished with Following Tops
Sol-Lux Senior Top—Metal or Glass Canopy
Meridian Senior Top
Octagonal Senior Top
Octagonal Junior Top
Egyptian Senior Top—Metal or Glass Canopy
Pagoda Top

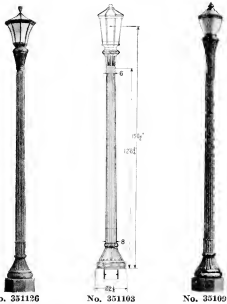
BROADWAY JUNIOR DESIGN



No. 351072 No. 351048 No. 351053

Furnished with Following Tops
Sol-Lux Senior Top—Metal or Glass Canopy
Meridian Senior Top
Octagonal Senior Top
Octagonal Junior Top
Egyptian Senior Top—Metal or Glass Canopy
Pagoda Top
Complete information and prices on request.

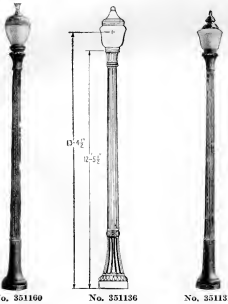
CUTTER SINGLE-LIGHT POSTS
GRAND VIEW DESIGN



No. 351126 No. 351103 No. 351098

Furnished with Following Tops
Sol-Lux Senior Top—Metal or Glass Canopy
Meridian Senior Top
Octagonal Senior Top
Octagonal Junior Top
Egyptian Senior Top—Metal or Glass Canopy
Pagoda Top

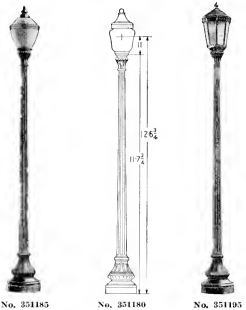
VISTA DESIGN



No. 351160 No. 351136 No. 351131

Furnished with Following Tops
Sol-Lux Senior Top—Metal or Glass Canopy
Meridian Senior Top
Octagonal Senior Top
Octagonal Junior Top
Egyptian Senior Top—Metal or Glass Canopy
Pagoda Top
Complete information and prices on request.

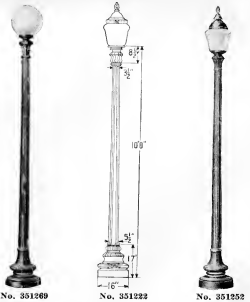
CUTTER SINGLE-LIGHT POSTS
VILLA DESIGN



No. 351185 No. 351180 No. 351195

Furnished with Following Tops
Sol-Lux Senior Top—Metal or Glass Canopy
Meridian Senior Top
Octagonal Senior Top
Octagonal Junior Top
Egyptian Senior Top—Metal or Glass Canopy
Pagoda Top

PARK VIEW AND VILLA JUNIOR DESIGNS



No. 351269 No. 351222 No. 351252

Furnished with Following Tops
Sol-Lux Junior Top—Metal or Glass Canopy
Meridian Junior Top
Octagonal Junior Top
Egyptian Junior Top—Metal or Glass Canopy
Complete information and prices on request.

CUTTER SINGLE-LIGHT POST TOPS

Sol-Lux Post Top Metal Canopy and Arcadian Casing

Sol-Lux Post Top With Glass Canopy and Arcadian Casing

Octagonal Junior Top

Octagonal Senior Top

Octagonal Pendent Lantern

Egyptian Senior Top

Egyptian Junior Top

Complete information and prices on request.

CUTTER SINGLE-LIGHT POST TOPS

Pagoda Top

Beacon Top

Meridian Senior Post Top with Commercial Casing

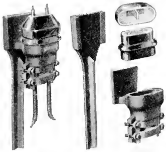
Meridian Junior Post Top with Commercial Casing

Paragon Senior Post Top

Paragon Junior Post Top

Complete information and prices on request.

CUTTER PARTS FOR SINGLE-LIGHT POSTS



No. 343165 Parts for No. 343165

POTHEADS

This device is used for clamping together the lead and steel coverings of the cable and connecting them to ground through the base of the post or the ground support. The porcelain body forms a receptacle where the cables are connected and sealed in with insulating compound. Has a two-piece porcelain body so arranged that in the event of breakage of a post the upper part of the pothead is pulled off, thus disconnecting the wires in the post from the underground system.

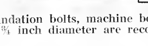
Mfrs. No	Description	Wt.Lbs. Each	Price Each
342643	Simple Pothead Complete......	16	$6.00
	Consists of Five Parts as Follows:		
336052	Simple Pothead Porcelain....	3	1.00
336157	Pothead Body Casting............	5	2.10
336158	2 Clamps	1	1.25
336127	Ground Support	5	1.50
341911	Sealing Compound (1 lb.)....	1	.15
343165	Disconnecting Pothead Complete	17	12.00
	Consists of Five Parts as Follows:		
336130	Disconnecting Pothead Porcelain	4	7.00
336157	Pothead Body Casting............	5	2.10
336158	2 Clamps	1	1.25
336127	Ground Support	5	1.50
341911	Sealing Compound (1 lb.)....	1	.15

HEAVY DUTY EXPANSION BOLTS

Used whenever pots are to be fastened to concrete sidewalks and when brackets are to be mounted on concrete, brick, or stone walls. Their holding power exceeds that of standard machine bolts. They save 50 to 75 per cent of drilling costs. Furnished in sets of four.

Mfrs. No.	Length In.	Diameter In.	Wt.Lbs. Per 100	Price Per Set
335576	4½	⅝	70	$1.25
335577	6	⅝	80	1.50
335578	9	⅝	90	1.75
335579	12	⅝	100	2.00
335580	4 Spacing sleeves extra		20	.20
335581	4 Sec. expansive units		30	.90

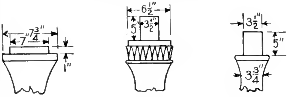
FOUNDATION BOLTS



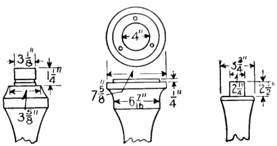
For foundation bolts, machine bolts 15 inches long and ¾ inch diameter are recommended for all posts.

CUTTER PARTS FOR SINGLE-LIGHT POSTS

COLUMN TOP FITTERS



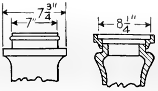
Type A Type B Type C



Type E Type F Type D

The top of each column forms a fitting by means of which either the post top, lighting unit or the casing may be attached to the column. Drawings of the various types are shown above.

CASING-TOP FITTERS



Type A Type G

All casings have top fitters corresponding to the two types shown. The globe ring changes the type A fitter into type G.

Type G-1 casings have the same fitters as type G, but in addition have sufficient space to accommodate reactance coils and auto-transformers.

Mfrs. No.	Casing	Type of Column Top †Fitter	Additive Ht. of Casing In.	Type of Fitter Top of Casing	Shp. Wt. Lbs.	Price Each
336152	*Arcadian	A	7¾	G-1	34	$8.00
350662	‡Arcadian	A	5¾	A	34	6.00
351383	*Edgewater Jr.	E	7	G-1	35	6.00
353387	‡Edgewater Jr.	E	5	A	35	4.00
336540	*Edgewater	E	7⅝	G-1	35	8.00
351382	‡Edgewater	E	5⅝	A	35	6.00
339004	*Commercial	F	7½	G-1	39	8.00
353423	‡Commercial	F	5½	A	39	6.00
336363	‖Sol-Lux Sr.	B	14¼	G-1	81	8.00
336364	‖Sol-Lux Jr.	C	14¼	G	80	8.00
351380	*Park View	C	8¼	G	33	6.00
351381	‡Park View	C	6¼	A	33	4.00
336374	*Egyptian Sr.	B	12¾	G-1	47	8.00
336294	‡Egyptian Sr.	B	10¾	A	47	6.00
336373	*Egyptian Jr.	C	11¾	G-1	40	8.00
336293	‡Egyptian Jr.	C	9¾	A	40	6.00
353741	*Grand View	B	19⅞	G-1	81	8.00
353736	‡Grand View	B	17⅞	A	81	6.00
353742	*Vista	F	11	G-1	50	8.00
353743	‡Vista	F	2	A	50	6.00
336208	Globe Ring	A	9	G	3	2.00

*With globe ring. ‡ Without globe ring. ‖Cannot be furnished without globe holder ring. †Each casing can be used only with columns having the type of top fitter indicated in this column.

CUTTER TROLLEYLITE BRACKETS

Sol-Lux Junior
With Metropolis Base

Municipal
With Metropolis Base

SOL-LUX JUNIOR

This is a complete fixture, less lamp and wiring, but does not include the steel pole. It is regularly equipped with globe holder, Sol-Lux Junior globe, metal canopy, porcelain disc insulator and Regent film series socket. *Multiple sockets furnished when ordered.

Distance from pole to center of globe, 30 inches. Height over all, 52 inches. Diameter of arm, 2⅞ inches. Distance from center of arm to bottom of scroll, 18 inches.

Mfrs. No.	For Pipe Inches	Wt. Lbs. Each	Price Each
342088	4	160	**$62.50**
342089	5	160	**62.50**
342090	6	160	**62.50**
342091	7	160	**62.50**
342985	For Wooden Poles	**160**	**62.50**

MUNICIPAL

This bracket is furnished with globe holder, Sol-Lux Senior globe metal canopy, porcelain disc insulator and Regent film series socket. *Multiple sockets furnished when ordered. Distance from pole to center of globe, 24 inches. Height over all, 53 inches. Width of arm, 4 inches.

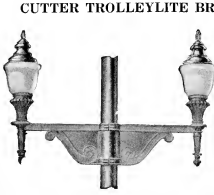
Mfrs. No.	For Pipe Inches	Wt. Lbs. Each	Price Each
340967	4	150	**$80.00**
340968	5	150	**80.00**
340969	6	150	**80.00**
340970	7	150	**80.00**
340971	For Wooden Poles	150	**80.00**

*If mogul multiple socket is used, deduct **$1.00** list for each socket; for medium multiple socket, deduct **$1.10** each list.

Prices do not include pole but prices on tubular steel trolley poles will be furnished on request.

The brackets listed above can also be furnished as double arm brackets or can be arranged for mounting on expanded metal poles. Prices furnished upon request.

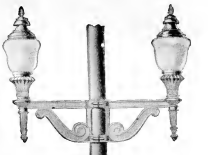
CUTTER TROLLEYLITE BRACKETS



AVENUE

Furnished in either single or double arm. List prices include globe holders, Sol-Lux Senior globes and ventilators, porcelain disc insulators and Regent film sockets. If Mogul multiple sockets are used, deduct $1.00 list for each socket; for medium screw sockets, deduct $1.20 each list. Distance from pole to center of globe, 36 inches. Height over all, 57 inches.

Single Arm				Double Arm		
Mfrs. No.	Wt. Lbs. Each	Price Each	For Pipe Inches	Mfrs. No.	Wt. Lbs. Each	Price Each
340972	220	**$90.00**	4	**340976**	440	**$180.00**
340973	220	**90.00**	5	**340977**	440	**180.00**
340974	220	**90.00**	6	**340978**	440	**180.00**
304975	220	**90.00**	7	**340979**	440	**180.00**



PARKWAY

Similar to the Avenue, except shorter and lighter. Furnished with Sol-Lux Junior top. Distance from pole to center of globe, 30 inches. Height over all, 50 inches.

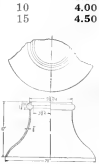
Single Arm				Double Arm		
Mfrs. No.	Wt. Lbs. Each	Price Each	For Pipe Inches	Mfrs. No.	Wt. Lbs. Each	Price Each
340980	190	**$80.00**	4	**340984**	380	**$160.00**
340981	190	**80.00**	5	**340985**	380	**160.00**
340982	190	**80.00**	6	**340986**	380	**160.00**
340983	190	**80.00**	7	**340987**	380	**160.00**

ACORN TOP ORNAMENTS

Cast iron pole top for use with tubular steel trolley poles.

Mfrs. No.	For Pipe Inches	Wt. Lbs. Each	Price Each
335603	2½	3	**$2.50**
339608	3	5	**3.00**
339387	4	8	**3.50**
339718	5	10	**4.00**
350015	6	15	**4.50**

PLAIN WHEEL GUARDS



Cast iron base to slip over steel poles to protect the pole from being damaged by wheels of vehicles.

Mfrs. No.	For Pipe Inches	Wt. Lbs. Each	Price Each
351398	6	68	**$21.00**
351399	7	68	**22.00**
351400	8	68	**23.00**

CUTTER ORNAMENTAL WALL BRACKETS

Colonial with Octagonal Junior Reflectolux Pendant

COLONIAL

The exterior of churches, public buildings, railroad depots, etc., may be effectively lighted with units mounted on ornamental brackets.

The Colonial bracket has been designed for use with Octagonal Reflectolux lanterns. The price includes the bracket only. See another page for prices on lanterns.

Distance from wall to center of lantern, 30 inches. Height from bottom of lantern to center of bracket, 30½ inches. Hanging distance from center of bracket to center of lantern, 17 inches.

Mfrs. No.	Description	Wt. Lbs. Each	Price Each
351402	Bracket Only	94	$30.00

SANTIAGO

The Santiago bracket is designed for use with Octagonal Reflectolux lanterns.

The wall plate is 8 inches wide and 12 inches high. Distance from wall to center of lantern, 20½ inches. Hanging distance from center of bracket to center of lantern, 17½ inches.

Santiago with Octagonal Junior Reflectolux Pendant

Mfrs. No.	Description	Wt. Lbs. Each	Price Each
351401	Bracket Only	98	$29.00

COMMERCE

4 Light Commerce

A massive fixture of distinctly artistic and classical design, arranged for round ball globes in one-light, three-light and four-light units. They are particularly adapted for lighting entrances to fine structures.

Prices include bracket with medium screw socket for side globes and mogul screw socket for top globes, but do not include globes; 6x10 inch globes are recommended for side, and 6x12 inch for top.

The wall plate is 9 inches wide and 20 inches high. Distance from wall to center of top globe, 14¼ inches. Height to bottom of globe one-light bracket, 30½ inches; to bottom of center globe of three and four-light brackets, 41 inches. Distance from center to center of opposite globes, 30 inches.

Mfrs. No.	Description	Wt. Lbs. Each	Price Each
341453	One Light	90	$51.50
341454	Three Light	145	60.00
341455	Four Light	155	65.00

CUTTER ORNAMENTAL WALL BRACKETS

Midget

MIDGET

A light, cast iron bracket, designed for small sizes of lamps which do not require ventilation. Has a threaded stem for attachment to crowfoot or conduit. Diameter of wall canopy, 5¼ inches. Distance from end of stem to center of globe, 6 inches. Equipped with 4¼ inch holder and medium screw socket, but not wired.

Mfrs. No.	Description	Wt. Lbs. Each	Price Each
341451	Without Globe	7	$5.25

REVERSIBLE

When desired this bracket may be reversed. In this position, it has the same artistic lines as in the position illustrated. Distance from wall to center of globe, 2 feet. Distance between centers of wall plates, approximately 20 inches. Fitted with 8 inch globe holder. Prices do not include globe or wiring.

Reversible

Mfrs. No.	Description	Wt. Lbs. Each	Price Each
340966	Medium Multiple Socket	65	$25.90
341452	Mogul Multiple Socket	65	26.00

CORRIDOR

3 Light Corridor

These cast iron brackets are of artistic design and adaptable to corridors or arcades in office buildings, schools, public buildings, etc.

Distance from wall to center of globe of the one-light bracket, 10 inches. Distance from center to center of opposite globes of the three-light bracket, 16 inches. Height over all, 40 inches. Globe holders have 6 inch fitters for 6x8 inch side globes and 6x10 inch center globes.

Prices below include globe holders and medium screw sockets, but not the globes or wiring.

Mfrs. No.	Description	Wt. Lbs. Each	Price Each
340963	One Light	65	$25.00
340964	Three Light	110	27.00
340965	Four Light	135	43.50

TORK CLOCKS

TEN DAY CLOCKS—ON AND OFF DAILY

Tork Clocks are made in three sizes and will handle any loads within their rated capacities.

Tork Clocks may be installed without soldering connections or providing additional junction boxes. The switch unit is taken out by removing one screw, providing ample room for easy connection of conduits to bottom of case; then switch unit is replaced and wires connected to large binding screws.

The time motors are standardized and interchangeable and may be exchanged for renewed time motors for a moderate charge.

Weatherproof Case—Padlockable

Mfrs. No.	Poles	Amp.	Volts	Carton	Shipping Wt. Lbs.	Price Each
1230	2	30	250	2	32	$25.00

Two ¾-inch knockouts.
Dimensions overall: 10¼x7x5½ inches.

Dustproof Case—Padlockable

1130	2	30	250	2	15	$24.00

Two ¾ and ½-inch knockouts.
Dimensions overall: 8¾x6x4 inches.
No. 1130 clock is the same as No. 1230 except housing, which is similar to No. 1115.

Dustproof Case—Padlockable

Mfrs. No.	Poles	Amp.	Volts	Carton	Shipping Wt. Lbs.	Price Each
1115	2	15	250	2	13	$20.00

Two ½-inch knockouts.
Dimensions overall: 8x5x4 inches.

TORK CLOCKS

TEN DAY CLOCKS—ON AND OFF DAILY

DUSTPROOF CASE

Mfrs. No.	Poles	Amp.	Volts	Carton	Shipping Wt. Lbs.	Price Each
1106	1	6	125	2	13	$15.00

Two ½-inch knockouts.
Dimensions overall: 8x4½x4 inches.

FOR OPERATING HIGH DUTY MAGNETIC SWITCHES

The use of magnetic remote control switches is recommended for controlling large loads of 50 to 2500 amperes. The No. 1166 clock is specially designed for operating this type of switch. A comparatively small amount of current passes through the electro-magnets controlled by this clock.

Dustproof Case—Padlockable
Single Pole, Double Throw

Mfrs. No.	Amps.	Volts	Price Each
1166	6	250	$20.00

Two ½-inch knockouts.

TIME MOTOR

Mfrs. No.		Price Each
10	Standardized 10-day Time Motor	$8.00

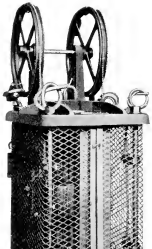
ATTACHMENT DIAL

Mfrs. No.		Price Each
TD	On-and-Off Twice-A-Day, for any Tork Clock	$2.00

SWITCH UNIT

Tork Clocks have a selective switch unit designed for operation by a time motor. May be conveniently operated by hand at any time without upsetting the sequence of automatic operations.

WESTINGHOUSE MOVING COIL REGULATORS AND CONTROL PANELS



STATION TYPE REGULATORS

Transformers for Other Voltages, Frequencies or Currents Can Be Furnished On Order

The moving coil regulator depends upon the electrical repulsion existing between the primary and secondary coils of the transformer under load to produce and maintain a constant current in the secondary or lamp circuit. The regulator can be adjusted to maintain its rated secondary current under the normal conditions of load, primary voltage and frequency, regardless of the number of lamps in the circuit. The coils consist of a number of concentric sections and are known and described as ventilated coils. The individual sections consist of two layers, having one side of each conductor directly exposed to the air. No taping is used except for the protection of leads. The coils are insulated from the metal parts by Micarta tubes. These coils are most rugged and durable, withstanding heavy strains and overloads to the best advantage, and by reason of their light weight, make possible a very high sensitiveness in regulation.

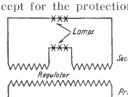


Diagram of Inter-Connected Secondary Circuits

The rating and performance of these regulators is based on average load conditions, consisting of an incandescent load in unity power factor and a line having 5 per cent ohmic and 10 per cent reactive drop. Their rating in kilovolts at the terminals of the regulator with unity power factor would be 9 per cent above the standard rating. Enclosed carbon arc lamps may be operated from these regulators when equipped with a dash pot. A Westinghouse 6.6 or 7.5 ampere enclosed carbon arc lamp, adjusted in accordance with the specifications, requires .62 or .70 kilovolt amperes respectively of rated regulator capacity for its operation. The efficiency of these regulators at full load varies from 90 to 96 per cent for the various sizes. The power factor similarly varies from 83 to 86 per cent. The regulator will maintain the secondary current within 2 per cent of its normal rating in the 4, 8 and 12 kilowatt sizes, or within 1 per cent on the larger sizes.

Circuits—The 34, 50 and 68 kilovolt-ampere sizes are arranged to operate two inter-connected circuits. To keep the load voltage to a minimum, each circuit should be approximately one half the capacity of the regulator. Two circuits may be operated from any regulator by the use of a two-circuit panel.

Taps—Primary taps are arranged for 2400, 2200 and 2000 volts. Secondary taps are provided for 80 and 90 per cent of full load.

Automatic operation with a time switch is successful, if the load is such that the coil separation is not more than 2 inches. With light loads, auxiliary blocks or catches should be installed for reducing the movemennt of the secondary coil towards the primary coil when the power is interrupted.

REGULATING TRANSFORMERS FOR 2200 VOLT 60 CYCLE PRIMARY AND 6.6 AMPERE SECONDARY CIRCUITS

Mfrs. No.	Cap. Kv-a	Approx. Wt., Lbs. Net	Approx. Wt., Lbs. Shpg.	Price Each	Mfrs. No.	Cap. Kv-a.	Approx. Wt., Lbs. Net	Approx. Wt., Lbs. Shpg.	Price Each
200599	4	480	725	**$430.00**	**200611**	24	1250	1650	**$900.00**
200602	8	685	985	**500.00**	**200614**	34	1350	1750	**1050.00**
200605	12	850	1200	**600.00**	**236673**	50	1800	2200	**1300.00**
200608	17	1000	1350	**700.00**	**236674**	68	2200	2600	**1750.00**

For a transformer equipped with dash pot, add **$15.00** to list price.

REGULATOR CONTROL PANELS

Single Circuit—Single Throw

Mfrs. No.	No. of Switches	For Regulator	Shpg. Wt. Lbs.	Price Each	Mfrs. No.	No. of Switches	For Regulator	Shpg. Wt. Lbs.	Price Each
370647	1	4KVA	300	**$160.00**	**370652**	2	8KVA	350	**$200.00**
370648	1	8KVA	300	**160.00**	**370653**	2	12KVA	350	**200.00**
370649	1	12KVA	300	**160.00**	**370654**	2	17KVA	350	**200.00**
370650	1	17KVA	300	**160.00**	**370655**	2	24KVA	350	**200.00**
370651	2	4KVA	350	**200.00**	.....	..	.....	.....	.....

*Two Circuit—Single Throw

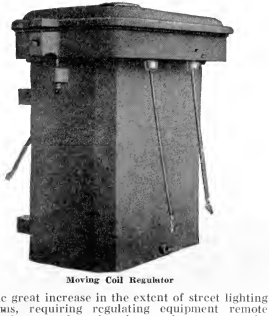
370656	3	34KVA	450	**$300.00**	**370658**	3	68KVA	450	**300.00**
370657	3	50KVA	450	**300.00**	.....	..	.....	.....	.....

*Panels include current transformer and mounting bracket.

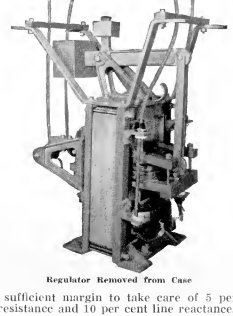
Description	Approx. Shpg. Wt. Lbs.	Price Each
Sub-Panel for any Standard Panel, complete with necessary Watthour Meter, Current and Voltage transformers, fuse blocks and fuses	150	**$175.00**
Double-Throw Panels, add to above Two-Switch and Three-Switch Single-Throw Panels	.....	**50.00**
Current Transformer and Mounting Bracket for a Panel when operated on Regulators of over 4000 volts	.....	**30.00**

WESTINGHOUSE MOVING COIL REGULATORS

POLE TYPE REGULATORS



Moving Coil Regulator



Regulator Removed from Case

The great increase in the extent of street lighting systems, requiring regulating equipment remote from the central station, has made necessary the pole type moving coil regulator.

This regulator with its stationary primary coil and movable secondary coil, operates upon exactly the same principle as the station-type of moving coil regulator. Since it is usually installed in out-of-the-way places, it is necessarily automatic in operation. The working parts are enclosed in a standard transformer case, which is mounted on the pole in the usual manner. Control is effected by means of time switches.

The regulator is designed for a standard primary voltage of 2300 volts, an extra tap being provided for 90 per cent of standard primary voltage. Whenever the voltage falls more than 3 per cent below normal, connections should be made to the 90 per cent tap. Regulators, unless otherwise specified, are furnished with connections made to the standard 2300 volt tap.

The standard secondary current is 6.6 amperes. Regulation is maintained within 1.5 per cent of normal, under all load conditions, from full load to short circuit. These regulators have been designed with sufficient margin to take care of 5 per cent line resistance and 10 per cent line reactance.

Two balancing weights are provided, adjustable to a right angle, so that perfect balance is obtained in all positions of the coil. Both weights are entirely above the oil and readily accessible. Set screws with lock nuts are provided to lock the weights securely in position.

Phosphor-bronze bumpers prevent the coils from striking together. Ball bearings are provided at all movable points of support. The movable coil is held securely in a frame of Micarta angles.

Pole type regulators must operate in all weathers. To insure satisfactory performance during extremely cold weather Wemco C oil is furnished with these regulators and must be used for renewal purposes.

Lightning protection is essential on all overhead street lighting circuits. Type LV autovalve distribution arresters are recommended for this application. List price includes transformer, one set of hanger irons and the necessary oil. When ordering, specify separately each item included in the list price as shown below.

Mfrs. No. Regulator	Mfrs. No. Hanger Irons	Capacity in Kw.	Gallons Oil	Approximate Wt. Lb. *Net	Approximate Wt. Lb. †Shipping	†Price Each
358629	109714	2	18	405	735	**$415.00**
358630	109714	5	18	515	845	**520.00**
358631	129384	7½	31	600	1070	**565.00**
358632	129384	10	31	785	1145	**580.00**
358633	365984	15	58	875	1585	**800.00**

EFFICIENCY AND POWER FACTOR

Capacity in Kw.	Efficiency				Primary Power Factor			
	Full Load	¾ Load	½ Load	¼ Load	Full Load	¾ Load	½ Load	¼ Load
2	91.0	88.3	88.3	71.6	75	55	38	21
5	93.5	91.5	88.3	78.0	75	55	38	21
7½	93.5	91.6	87.8	78.3	75	55	38	21
10	85.7	94.5	92.2	85.5	75	55	38	21
15	95.5	93.8	91.2	83.7	75	55	38	21

*Net weight includes transformer without oil. †Shipping weight includes transformer boxed for shipment, complete with hanger irons and oil in container. ‡Fuse blocks are not included in this price. ¶The standard regulator operates on 60 cycle circuits. Regulators for other frequencies can be furnished on order. Oil weighs approximately 7 pounds net per gallon and 8½ pounds shipping.

WESTINGHOUSE MOVING COIL REGULATORS

TIME SWITCHES
Two or Three Pole, High Tension, Oil Break

TYPE L TIME SWITCHES

Type L Time Switch

Constructed for controlling alternating current circuits up to, and including, 6600 volts, and is furnished either two or three pole. It is an oil break switch having a high grade prouelling mechanism and time piece. Used extensively in connection with the pole type, constant current regulator, where lamps are connected permanently to the secondary coil of the regulator. When installed on poles, or other exposed places, additional weather protection should be provided. For this purpose a wooden housing with porcelain insulators can be supplied at **$16.00** list additional.

For Potentials Not Exceeding 3300 Volts

Mfrs. No.	Cap. No. Amp.	Pos	Lth.	Dimens., In. — Wth.	Dpth.	Wt. Lb. — Net	Shpg.	Price Each
W-11039	25	2	20	10½	7¼	44	65	**$120.00**
W-11040	50	2	20	10½	7¼	45	65	**130.00**
W-11043	25	3	20	14	10	50	75	**144.00**
W-11044	50	3	20	14	10	50	75	**160.00**

For Potentials Not Exceeding 6600 Volts

W-11080	25	2	20	11½	8	50	75	**200.00**
W-11081	50	2	20	11½	8	50	75	**220.00**
W-11084	25	3	21	15	10	60	90	**240.00**
W-11085	50	3	21	15	10	60	90	**270.00**

TYPE T TIME SWITCHES

Similar to type L, but electrically wound. Switches are furnished for winding at either 110 or 220 volts, alternating current or direct current. Orders should state the winding voltage and, if alternating current, the frequency of the circuit.

If desired, these switches can be furnished at **$40.00** list, additional, with an attachment which automatically takes care of seasonal variation in the day's length.

For Potentials Not Exceeding 3300 Volts

Mfrs. No.	Cap. No. Amp.	Pos	Lth.	Dimens., In. — Wth.	Dpth.	Wt. Lb. — Net	Shpg.	Price Each
W-11098	25	2	22	10½	7¼	65	90	**$200.00**
W-11099	50	2	22	10½	7¼	65	90	**210.00**
W-11100	25	3	22	14	10	70	95	**224.00**
W-11101	50	3	22	14	10	70	95	**240.00**

For Potentials Not Exceeding 6600 Volts

W-11102	25	2	22	11½	8	70	100	**280.00**
W-11103	50	2	22	11½	8	70	100	**300.00**
W-11104	25	3	22	15	10	80	110	**320.00**
W-11105	50	3	22	15	10	80	110	**350.00**

Note.—Types L and T switches operate in primary circuits only. If desired, type M switches, which operate in both primary and secondary circuits, can be supplied. Prices furnished on request.

WESTINGHOUSE LIGHTING TRANSFORMERS

AUTO-TRANSFORMERS

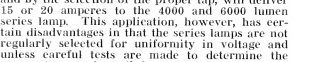
The demand for increased effieiencies in lighting systems led the lamp manufacturers to produce series lamps, which operate at 15 and 20 amperes. In order that these lamps might be operated on standardized series circuits of 6.6 or 7.5 amperes, auto-transformers were designed for use with each lamp. The current is taken from the line at either 6.6 or 7.5 amperes and delivered to the lamp at 15 amperes for 4000 lumen lamps and 20 amperes for 6000 and 10,000 lumen lamps. Mogul base multiple sockets should be used.

In some localities, it has been found desirable to distribute power on low voltage multiple circuits and at the same time make use of the high current series lamps. The 6000 lumen 110 and 220 volt multiple coils listed below make this possible. They may be connected on 110 or 220 volt mains and by the selection of the proper tap, will deliver 15 or 20 amperes to the 4000 and 6000 lumen series lamp. This application, however, has certain disadvantages in that the series lamps are not regularly selected for uniformity in voltage and unless careful tests are made to determine the proper tap on the coil for each lamp there is a possibility of considerable variation in lamp current, resulting in low efficiency or short life.

Number and price include bare coil without socket or mounting details. Series coils have taps for either 6.6 or 7.5 ampere line current and each coil has a tap for the next smaller lamp as well as the lamp for which it is rated. Coils are for 60 cycles. Prices for special frequencies will be furnished on request.

Mfrs. No.	Lamp Lumens	Approx. Watts	Primary Amps.	Sec'dary Amps.	Price Each
250220	4000	200	6.6–7.5	15	**$8.00**
250221	6000–4000	300	6.6–7.5	20–15	**10.25**
250222	10000–6000	500	6.6–7.5	20	**13.75**
302535	6000–4000	300	110	20–15	**12.50**
302536	6000–4000	300	220 volts	20–15	**12.50**

Diagram of Connections for Auto-Transformers



Mfrs. No.	Fig. No.	Lamp Lumens	Line Current	Lamp Current	—Connections— Line	Lamp
250220	1	4000	6.6	15	1, 4	3, 4
250220	1	4000	7.5	15	2, 4	3, 4
250221	2	6000	6.6	20	1, 6	5, 6
250221	2	6000	7.5	20	2, 6	5, 6
250221	2	4000	6.6	15	3, 6	5, 6
250221	2	4000	7.5	15	4, 6	5, 6
250222	2	10000	6.6	20	1, 6	5, 6
250222	2	10000	7.5	20	2, 6	5, 6
250222	2	6000	6.6	20	3, 6	5, 6
250222	2	6000	7.5	20	4, 6	5, 6

Diagrams for Nos. 302535 and 302536 furnished on request.

REACTANCE COILS

The single-phase reactance coils listed below are mounted in streethoods and post tops when an adjuster socket system is used to maintain constant current. The style numbers given are for 6.6 ampere 60 cycle coils, without sockets or mounting details. Prices for complete fixtures are given on other pages.

Mfrs. No.	Lamp Lumens	Price Each	Mfrs. No.	Lamp Lumens	Price Each
219160	320-400-600	**$8.00**	**262293**	2500	**$11.00**
219161	800-1000	**9.00**	**262294**	4000	**13.00**

CROUSE-HINDS FLOODLIGHT PROJECTORS

IMPERIAL INCANDESCENT

TYPE SDA

Type SDA is mounted on a cast-iron swivel base which permits it to be turned at will in any direction. It is also equipped with a quadrant, likewise of cast-iron, which provides means for elevating or depressing the beam. Thus it is possible to turn the beam of light upon the object to be illuminated. Casing is made of black japanned, alloy-coated iron (rust-resisting), is weatherproof and ventilated to dissipate heat given off by the lamp.

With 9⅝-Inch Reflectors—150 Watts

Mfrs. No.	Style of Reflector	Wt. Lb. Each	Price Each
28685	Crystal Glass Mirror	22	**$18.25**
28686	Nickel Plated Copper	19	**16.00**
28687	Polished Aluminum	19	**15.25**

With 12-Inch Reflectors—250 Watts

28621	Crystal Glass Mirror	25	**34.00**
28622	Nickel Plated Copper	22	**30.00**
28623	Polished Aluminum	22	**29.00**

With 16-Inch Reflectors—500 Watts

28714	Crystal Glass Mirror	43	**62.00**
28624	Nickel Plated Copper	35	**37.00**
28625	Polished Aluminum	35	**35.50**

TYPE SDE

Type SDE is supported on trunnions with star-wheel for locking in position to hold the beam at any desired elevation. The casing is black japanned, alloy-coated (rust resisting) iron, is thoroughly weatherproof and ventilated to dissipate heat given off by lamp. The reflectors are true paraboloids; metal reflectors are spun over accurate steel forms, while glass reflectors are ground, buffed and polished on both surfaces. Backing on glass reflectors conforms to the Navy standard.

With 9⅝-Inch Reflectors—150 Watts

Mfrs. No.	Style of Reflector	Wt. Lb. Each	Price Each
29069	Crystal Glass Mirror	24	**$20.25**
29070	Nickel Plated Copper	21	**18.00**
29071	Polished Aluminum	21	**17.25**

With 12-Inch Reflectors—250 Watts

28688	Crystal Glass Mirror	27	**36.00**
28689	Nickel Plated Copper	24	**32.00**
28690	Polished Aluminum	24	**31.00**

With 16-Inch Reflectors—500 Watts

28715	Crystal Glass Mirror	45	**64.50**
28711	Nickel Plated Copper	37	**39.50**
28712	Polished Aluminum	37	**38.00**

CROUSE-HINDS FLOODLIGHT PROJECTORS

IMPERIAL INCANDESCENT

TYPE RCA

Type RCA projector has quadrant mounting. It also has a heat-resisting semaphore lens in front door and a heat-resisting prism glass reflector on the inside of the rear door. The lens and reflector are not affected by lamp heat, gases, rain or snow. The case and door are made of cast iron and finished inside and out with baked-on black enamel. The focusing mechanism is made of cast brass.

Designed to take 300 to 1000-watt, 110 or 220-volt type C Mazda lamps in a PS 52 bulb. The lamp may be adjusted from the outside of the casing by merely turning two wing screws. The adjustment may be made vertically and horizontally, so that the beam of light may be concentrated or spread.

With 12 Inch Semaphore Lens—300 to 1000 Watts

Mfrs. No.	Style of Reflector	Wt. Lb. Each	Price Each
29845	Prism	70	**$63.00**

TYPE RCE

Type RCE projector has trunnion mounting. It also has a heat-resisting semaphore lens in the front door and a heat-resisting prism glass reflector on the inside of the rear door. The lens and reflector are not affected by lamp heat, gases, rain or snow. The case and door are made of cast iron and finished inside and out with baked-on black enamel. The focusing mechanism is made of cast brass.

Designed to take 300 to 1000-watt, 110 or 220-volt type C Mazda lamps in a PS 52 bulb. The lamp may be adjusted from the outside of the casing by merely turning two wing screws. The adjustment may be made vertically and horizontally, so that the beam of light may be concentrated or spread.

With 12 Inch Semaphore Lens—300 to 1000 Watts

Mfrs. No.	Style of Reflector	Wt. Lb. Each	Price Each
29846	Prism	72	**$65.00**

CROUSE-HINDS ROUNDHOUSE REFLECTORS

These are the most durable and efficient lighting fixtures for railroad roundhouses, turntables, ash pits, etc., and for industrial plants. In steel mills, types RM and RS reflectors are used variously on larry, scale and bin-filling cars, to light runway where skip cars dump into hopper at top of blast furnace, to give illumination for operators attaching peel at charging boxes; also to illuminate gauges and the approach tables in rolling mills, and to light crane yards.

Can be installed in any desired position. Light is projected at right angles to surface on which mounted. Provided with one conduit hub in top and one in bottom; also one pipe plug for closing hub not in use.

With Clear Semaphore Lens

With Clear Glass

TYPE RM

With Clear Semaphore Lens

25 to 75 Watts — Polished Alumin.	25 to 75 Watts — White Enamel	Style of Reflector	100 to 200 Watts — Polished Alumin.	100 to 200 Watts — White Enamel
26005	**26055**	Mfrs. No.	**26021**	**26071**
39	39	Wt. Lbs.	50	50
$13.00	**$13.00**	Price Each	**$22.00**	**$22.00**

With Noglare (Yellow) Semaphore Lens

26087	**26097**	Mfrs. No.	**26092**	**26102**
39	39	Wt. Lbs.	50	50
$17.50	**$17.50**	Price Each	**$29.00**	**$29.00**

With Clear Glass

26001	**26051**	Mfrs. No.	**26017**	**26067**
35	35	Wt. Lbs.	45	45
$9.50	**$9.50**	Price Each	**$13.00**	**$13.00**

With Noglare (Yellow) Glass

26085	**26095**	Mfrs. No.	**26090**	**26100**
35	35	Wt. Lbs.	45	45
$16.00	**$16.00**	Price Each	**$22.25**	**$22.25**

With Safety First (Green with White Letters) Glass

26112	**26113**	Mfrs. No.	**26114**	**26115**
35	35	Wt. Lbs.	45	45
$13.00	**$13.00**	Price Each	**$17.00**	**$17.00**

TYPE RS

Type RS is designed to be suspended and project light downward. Inner surface is white enameled, serving as an interior reflector.

Mfrs. No.	Wt. Lbs.	Price Each
With Clear Glass 75 to 200 Watts		
26084	45	**$19.00**
With Noglare (Yellow) Glass 75 to 200 Watts		
26110	45	**26.25**

X-RAY FLOODLIGHT REFLECTORS

NO. 51 PROJECTOR

No. 51 Floodlight Projector

This weatherproof unit is small and easily concealed on a building structure. The No. 800 reflector furnished, unless otherwise specified, is designed to concentrate the light into a powerful beam. No. 810 reflector which gives a wide distribution of light approximately 40 degrees is furnished with No. 51E unit.

The lamp used is a standard 250 watt Mazda C G-30 Floodlighting lamp, medium screw base. For color lighting special heat-resisting pigment cover glass in red, blue, green or amber can be furnished at slight additional cost.

Mfrs. No.	No. Reflector	Dimen., In. — Diam.	Dimen., In. — Depth	Std. Pkg.	Ship. Wt. Lbs	Price Each
51D	800	11 ½	9 ¾	1	15	**$30.00**
51E	810	11 ½	9 ¾	1	15	**30.00**

Standard finish, gray. A swivel and tilting base, supplied with unit for bolting to supporting surface. Size of base, 2 x 4 inches with two ½-inch holes 2 ¾ inches on centers.

NO. 53 PROJECTOR

Fills the demand for a small portable floodlighting unit, especially satisfactory for spotlighting automobiles in display rooms. It is regular No. 51 projector unit mounted on a portable stand 24 inches high with 14-inch round iron base.

Height over all, 36 inches. Standard package, 1.

Mfrs. No.	No. Reflector	Ship. Wt. Lbs.	Price Each
53D	800	18	**$37.50**
53E	810	18	**37.50**

No. 53 Projector

NO. 55 PROJECTOR

Same as No. 53, but is equipped with an adjustable standard making it adjustable in height from 36 to 60 inches.

Mfrs. No.	No. Reflector	Ship. Wt. Lbs.	Price Each
55D	800	21	**$39.00**
55E	810	21	**39.00**

Standard package, 1.

COVER GLASS FOR ABOVE

These are interchangeable in Nos. 51, 53 and 55 projectors.

Mfrs. No.	Color	Price Each Glass Only
10281	Clear	**$3.50**
10282	Sanded	**3.75**
10291	Red	**5.00**
10292	Amber	**5.00**
10293	Blue	**3.50**
10294	Green	**3.50**

In ordering projectors with sanded or color lens, specify color desired; $3.50 is allowed for the regular clear lens when not supplied.

NO. 10265 SLEEVE FITTING

This sleeve will adapt No. 51, 53 or 55 projector for using standard P. S. 30 bulb 200 watt C lamp. Standard gray finish.

Price each **$4.00**

WESTINGHOUSE ELECTRIC WARE
COFFEE URNS AND PERCOLATORS
PANELED PATTERN LOVING CUP SET

Made of spun copper with a highly polished nickel finish. Creamer and sugar are gold lined. Tray is satin finish.

Standard Package One Complete Set

Coffee Urn Only

Mfrs. No. 100-110 Volts	111-120 Volts	Capacity Cups	Mfrs. No. 210-230 Volts	231-250 Volts
373035	**373036**	9	**373037**	**373038**

Sugar, Creamer and Tray to Match

Sugar.....No. **327484** Creamer.....No. **327483**
Tray.....No. **327485**

Price Set Complete.....**$42.50**

PLAIN PATTERN LOVING CUP SET

Made of spun copper with a highly polished nickel finish. Creamer and sugar are gold lined. Tray is satin finish.

Standard Package One Complete Set

Coffee Urn Only

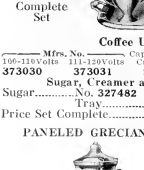
Mfrs. No. 100-110 Volts	111-120 Volts	Capacity Cups	Mfrs. No. 210-230 Volts	231-250 Volts
373030	**373031**	9	**373032**	**373033**

Sugar, Creamer and Tray to Match

Sugar.....No. **327482** Creamer.....No. **327481**
Tray.....No. **327485**

Price Set Complete.....**$39.50**

PANELED GRECIAN COFFEE URN SET



Made of spun copper with a highly polished nickel finish. Creamer and sugar are gold lined. Tray is satin finish.

Standard Package One Complete Set

Coffee Urn Only

Mfrs. No. 100-110 Volts	111-120 Volts	Capacity Cups	Mfrs. No. 210-230 Volts	231-250 Volts
373045	**373046**	8	**373047**	**373048**

Sugar, Creamer and Tray to Match

Sugar.....No. **327484** Creamer.....No. **327483**
Tray.....No. **327485**

Price Set Complete.....**$40.00**

WESTINGHOUSE ELECTRIC WARE
COFFEE URNS AND PERCOLATORS
PLAIN GRECIAN COFFEE URN SET

Made of spun copper with a highly polished nickel finish. Creamer and sugar are gold lined. Tray is satin finish.

Standard Package One Complete Set

Coffee Urn Only

Mfrs. No. 100-110 Volts	111-120 Volts	Capacity Cups	Mfrs. No. 210-230 Volts	231-250 Volts
373040	**373041**		**373042**	**373043**

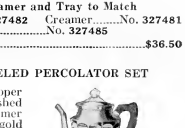
Sugar, Creamer and Tray to Match

Sugar.....No. **327482** Creamer.....No. **327481**
Tray.....No. **327485**

Price Set Complete.....**$36.50**

6 CUP PANELED PERCOLATOR SET

Made of spun copper with a highly polished nickel finish. Creamer and sugar are gold lined. Tray is satin finish.



Standard Package One Complete Set

Percolator Only

Mfrs. No. 100-110 Volts	111-120 Volts	Capacity Cups	Mfrs. No. 210-230 Volts	231-250 Volts
373055	**373056**	6	**373057**	**373058**

400 watts. Number includes flexible cord, separable attachment plug and percolator complete.

Sugar, Creamer and Tray to Match

Sugar.....No. **327484** Creamer.....No. **327483**
Tray.....No. **327485**

Price Set Complete.....**$34.50**

PANELED PATTERN LOVING CUP

Made of spun copper with a highly polished nickel finish.

Capacity 9 Cups

Mfrs. No.	Volts	Wt. Lbs. Net Shpg.	Wt. Lbs. Each	Price
373035	100-110	4½	7	**$25.00**
373036	111-120	4½	7	**25.00**
373037	210-230	4½	7	**25.00**
373038	231-250	4½	7	**25.00**

Standard package, **1.**

All of the devices shown on this page are for 400 watts.

The Mfrs. No. of the coffee urn and the percolator includes flexible cord, separable attachment plug and the device complete.

WESTINGHOUSE ELECTRIC WARE
COFFEE URNS AND PERCOLATORS

PLAIN PATTERN LOVING CUP

Number includes flexible cord, separable attachment plug and percolator complete.

Capacity 9 Cups—400 Watts

Mfrs. No.	Volts	Wt. Lb. Net	Wt. Lb. Shpg.	Price Each
373030	100-110	4½	7	**$23.00**
373031	111-120	4½	7	**23.00**
373032	210-230	4½	7	**23.00**
373033	231-250	4½	7	**23.00**

Standard package, **1.**

PANEL GRECIAN COFFEE URN

Number includes flexible cord, separable attachment plug and percolator complete.

Capacity 8 Cups—400 Watts

Mfrs. No.	Volts	Wt. Lb. Net	Wt. Lb. Shpg.	Price Each
373045	100-110	4	6	**$22.50**
373046	111-120	4	6	**22.50**
373047	210-230	4	6	**22.50**
373048	231-250	4	6	**22.50**

Standard package, 1.

PLAIN GRECIAN COFFEE URN

Number includes flexible cord, separable attachment plug and percolator complete.

Capacity 8 Cups—400 Watts

Mfrs. No.	Volts	Wt. Lb. Net	Wt. Lb. Shpg.	Price Each
373040	100-110	4	6	**$20.00**
373041	111-120	4	6	**20.00**
373042	210-230	4	6	**20.00**
373043	231-250	4	6	**20.00**

Standard package, **1.**

PANEL PERCOLATOR

Number includes flexible cord, separable attachment plug and percolator complete.

Cap. 7 Cups—400 Watts

Mfrs. No.	Volts	Price Each
373405	100-110	**$12.50**
373406	111-120	**12.50**
373407	210-230	**12.50**
373408	231-250	**12.50**

Standard package, **1.**

PLAIN PERCOLATOR

Number includes flexible cord, separable attachment plug and percolator complete.

Cap. 7 Cups—400 Watts

Mfrs. No.	Volts	Price Each
373400	100-110	**$10.50**
373401	111-120	**10.50**
373402	210-230	**10.50**
373403	231-250	**10.50**

Standard package, 1.

WESTINGHOUSE ELECTRIC WARE

PANELED CREAMERS

The creamers and paneled sugars with a tray make a beautiful set especially for gifts and entertainment at home. They are spun copper with a highly polished nickel finish and gold lined.

Mfrs. No.	Height Inches	Standard Package	Price Each
327483	3¾	4 Ass't Creamers, Sugars	**$5.00**

PANELED SUGARS

The sugars and paneled creamers with a tray make a beautiful set especially for gifts and entertainment at home. They are spun copper with a highly polished nickel finish and gold lined.

Mfrs. No.	Height Inches	Standard Package	Price Each
327484	3½	4 Ass't Creamers, Sugars	**$5.00**

PLAIN CREAMERS

These creamers are very distinctive in their richly simple lines. They are spun copper with a highly polished nickel finish and gold lined.

Mfrs. No.	Height Inches	Standard Package	Price Each
327481	3¾	4 Ass't Creamers, Sugars	**$4.50**

PLAIN SUGARS

These sugars are very distinctive in their richly simple lines. They are spun copper with a highly polished nickel finish and gold lined.

Mfrs. No.	Height Inches	Standard Package	Price Each
327482	3½	4 Ass't Creamers, Sugars	**$4.50**

RECTANGULAR TRAY

This conventional tray will harmonize perfectly to make an attractive set. It is of heavy copper nickel plated and satin finish.

Mfrs. No.	Size Inches	Wt. Lb. Net	Wt. Lb. Shpg.	Std. Pkg.	Price Each
327485	14x18	3	9	2	**$7.50**

PERCOLATOR AND URN ELEMENT

Westinghouse percolators are protected by the patented automatic safety fuse. If the percolator is allowed to boil dry the fuse melts and disconnects the current. A new fuse is easily screwed into position.

WESTINGHOUSE ELECTRIC WARE
HOUSEHOLD AND LAUNDRY IRONS

SIX POUND WESTINGHOUSE IRON

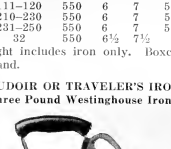
Large, uniformly heated base. The beveled edge and tapered point make it easy to iron the daintiest, frilliest frock. The correct balance and cool handle eliminate fatigue and assure comfort. The heating element, being completely sheeted in metal, is exceptionally sturdy.

Complete with fireproof stand, cord with separable attachment plug and receptacle. Standard package, 6 irons of one number, except 32 volt iron which is one (1).

Mfrs. No.	Volts	Watts	Wt. Lb. Net	Wt. Lb. Boxed	Std. Pkg.	Price Each
328091	100–110	550	6	7	50	**$6.75**
328092	111–120	550	6	7	50	**6.75**
328093	210–230	550	6	7	50	**6.75**
328094	231–250	550	6	7	50	**6.75**
283427	32	550	6½	7½		**6.75**

Net weight includes iron only. Boxed weight includes stand.

BOUDOIR OR TRAVELER'S IRON
Three Pound Westinghouse Iron



The Boudoir iron, while designed especially for travelers, will be found convenient for all kinds of light pressing in the home. Industrial establishments, such as millinery shops, find it useful.

The base is flanged to give a greater ironing surface and ease in ironing fancy tucks. The cord is permanently attached. A separate fireproof stand is furnished. Stand has an opening between top and middle plates in which a curling iron may be heated. Number includes the iron with fireproof stand, flexible cord attachment, and attachment plug.

Mfrs. No.	Volts	Watts	Wt. Lb. Net	Wt. Lb. Boxed	Std. Pkg.	Price Each
238887	100–120	250	3	4	15	**$5.00**
238888	200–240	250	3	4	15	**5.00**
284087	32	250	3	4	15	**5.00**

Net weight includes iron only. Boxed weight includes stand.

Note.—Irons for 32 volts have permanently attached cord and 25 ampere polarized attachment plug.

WESTINGHOUSE ELECTRIC WARE
HOUSEHOLD AND LAUNDRY IRONS

EIGHT POUND TYPE E

This iron is used for heavy pressing in general household work and laundry service where an iron heavier than a 6 pound iron is desired.

The heat radiation from the top is prevented by a dead air space between the heat storage plate and the iron shell. Practically all heat is retained at the ironing surface.

The iron is accurately balanced to make handling easy. The handle is correctly shaped to fit the hand and is always cool. The ironing surface is quite large and allows each stroke to do more ironing than can be done with the lighter weight iron. Complete with fireproof stand, flexible cord and separable attachment plug. Standard package, 4 irons of one number.

Mfrs. No.	Volts	Watts	Wt. Lb. Net	Wt. Lb. Boxed	Price Each
230476	100–107	635	8	9	**$8.50**
230477	108–115	635	8	9	**8.50**
230478	116–125	635	8	9	**8.50**

Net weight includes iron only. Boxed weight includes stand.

TAILOR'S IRON

Specially desirable in tailoring and pressing establishments. Similar to standard flat irons but of heavier construction. The stand is a cast iron plate mounted on a slate base. Working face, polished; lower edges, blued; casing, dull black; handle standards, bright steel; handle, natural wood color. Cord is permanently attached. These irons should not be connected to lamp sockets because of their heavy current. A 10 ampere plug switch makes a simple and reliable method of connecting to circuit.

Complete with cord and fireproof stand, but no attachment plug. Unit package, 1 tailor's iron.

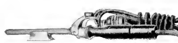
Mfrs. No. 100–120 Volts	Mfrs. No. 200–240 Volts	Dimens. In. Watts	Dimens. In. Width	Dimens. In. Length	Wt. Lb. Net	Wt. Lb. Boxed	Price Each
122502	122505	700	3	10½	12	22	$15.00
122508	122511*	700	3	10½	15	26	16.00
122514	122517*	750	3	10½	18	28	11.00
121355	121358	800	3½	11¼	15	26	16.00
121361	121364	800	3½	11¼	20	30	18.00
121367*	121370	850	3½	11¼	24	35	12.00
	122481*	750	5½	8½	12	22	7.50
122484	122487	750	5½	8½	15	25	16.00
122490*	.....	800	5½	8½	18	28	11.00
122496*	122497	750	5½	8½	22	32	12.00

Net weight includes iron only. Boxed weight includes stand.

*Until present stock is exhausted.

WESTINGHOUSE ELECTRIC WARE

CURLING IRON



The heating element of the curling iron is in the form of a rod inserted directly into the barrel and can be easily removed for servicing. The swivel plug which fits in the end of the handle is moulded of specially prepared composition and will not break if dropped. This plug enables the user to grasp the iron in such a way that it can be freely rotated without twisting the cord. Strong spring contacts in the plug assure a good connection.

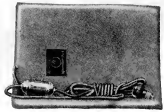
The cord is attached to these contacts within the swivel plug—there are no exposed terminals. The detachable clamp fits snugly over the tong and is held down by a dependable spring.

The finish is highly polished nickel and the handle is ebonized black. Manufacturer's number includes curling iron complete with cord and separable attachment plug. Standard package, 4 curling irons of one number.

Mfrs. No. 32 Volts	100-125 Volts	200-240 Volts	Watts	Shpg. Wt. Net Oz.	Pkg. Lb.	Price Each
289373	**185143**	**289374**	18	9	3	**$5.75**

WESTINGHOUSE ELECTRIC WARE

WARMING PADS



Warming pads are soft and pliable; encased in fawn-colored eiderdown covers and can be applied to any part of the body with comfort, being so light that their weight is unnoticed.

Pads have a three-heat switch on the cord. Automatic thermostats are mounted inside the pads to prevent overheating. Thermostats automatically cut off the current before temperature has become excessive and automatically close the circuit when the pad has cooled to normal temperature.

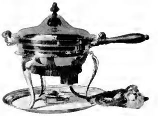
Number includes warming pad, flexible cord and separable attachment plug, and a three-heat switch. A linen cover slip is furnished with the large pad. Standard package, 4 warming pads of one number.

Mfrs. No.	Size Inches	Volts	Watts	Shpg. Wt. Lb. Each	Std. Pkg.	Price Each
258417	12x15	95–125	65	3	15	**$9.00**
283921	12x15	200–240	65	3	15	**9.00**
283922	12x15	32	65	3	15	**8.50**
283923*	9x12	32	48	2	10	**5.00**

*Until stock is exhausted.

WESTINGHOUSE ELECTRIC WARE

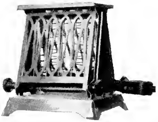
CHAFING DISHES



Finished in highly polished nickel. Number includes water pan, food pan, cover, stand, disc stove with flexible cord and separable plug; also indicating push switch with three-heat stoves. Single heat stoves do not have switch. The disc stove may be used separately, if desired. It will do any light cooking and heating that a single burner gas stove will do.

Mfrs. No.	Volts	Watts	Heat	Std. Pkg.	Shpg. Wt. Lb.	Price Each
300296	100–120	150–300–600	3	1	12	**$21.00**
300297	200–240	600	1	1	12	**19.50**

TURNOVER TOASTERS



The "turnover" feature consists of a swinging rack on either side which is hinged at the bottom. The rack is lowered and raised by means of ebonized knobs. Finished in highly polished nickel. A flat surface on top of the toaster may be used to keep toast warm or it may be used to heat plates, keep coffee warm, etc.

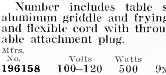
Number includes toaster and flexible cord with permanently attached plug and through switch.

Mfrs. No. 32 Volts	100-120 Volts	200-240 Volts	Watts	Wt. Lb. Each	Std. Pkg.	Price Each
283983	**372788**	**372789**	500	3½	15	**$8.50**

Standard package, 6 turnover toasters.

Note.—Through switch omitted on 32 volt devices, equipped with 25 ampere polarized wall plug.

TABLE STOVES



A complete and practical stove that will cook anything that can be cooked in the ordinary frying pan or on a turnover toaster. The frame and legs are heavily nickel plated and highly polished. Griddle is made of heavy gauge sheet aluminum and is equipped with a coiled wire handle on each end. Wire toasting screen is finished in dull nickel. The flexible cord is permanently connected to heavy brass terminals inside the stove.

Number includes table stove, toasting rack, aluminum griddle and frying plate, nickeled tray and flexible cord with through switch and separable attachment plug.

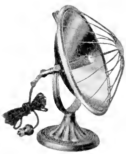
Mfrs. No.	Volts	Watts	Dimens. In.	Wt. Lb.	Price Each
196158	100–120	500	9x5¼x3⅝	8	**$10.50**
214903	200–240	500	9x5¼x3⅝	8	**10.50**
284080	32	500	9x5¼x3⅝	8	**10.50**

Standard package, 1 table stove.

Note.—Through switch omitted on 32 volt devices, equipped with 25 ampere polarized wall plug.

WESTINGHOUSE ELECTRIC WARE

COZY-GLOW AND COZY-GLOW JUNIOR RADIATORS



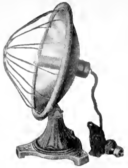
Cozy-Glow

The Cozy-Glow is provided with decorative bronze base which harmonizes with any room in the house.

The Cozy-Glow Junior has a triangular shaped base, is smaller than the Cozy-Glow, but otherwise it is the same.

The heavy base insures solidity, yet allows the radiator to be easily moved from place to place. The heating unit is easily removable, and consists of a porcelain cylinder around which the heating element is wound. It is protected by a stout copper wire guard, which can be removed for cleaning the reflector. The reflector, which directs the heat rays, is constructed of polished brass, neatly finished and heavily lacquered to prevent tarnishing.

A most convenient heater for warming the bed room, bath or nursery on chilly mornings and evenings during the early spring, fall and winter. Especially good for ticket booths, watchmen's boxes and waiting rooms and for preventing the frosting of show windows.



Cozy-Glow Junior

A feature of the radiator is the concentrated heat beam and the pleasing, soft, mellow glow it produces when in operation.

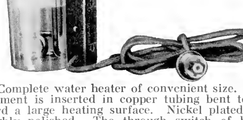
The design allows the control of the direction of the heat rays.

Furnished complete with a 10-foot flexible cord and separable attachment plug.

Cozy-Glow Radiator

Mfrs. No.	Volts	Watts	Std. Pkg.	Finish	Price Each
278758	100–120	600	3	Black	**$10.50**
278759	200–240	550	3	Black	**10.50**
395757	100–120	660	3	Bronze	**10.50**
395758	200–240	550	3	Bronze	**10.50**
	Cozy-Glow Junior Radiator				
396164	100–120	660	3	Bronze	**6.50**
396165	200–240	660	3	Bronze	**6.50**

TUMBLER WATER HEATERS



Complete water heater of convenient size. The element is inserted in copper tubing bent to afford a large heating surface. Nickel plated and highly polished. The through switch of black composition is extra large to provide a rest as well as a practical switch for the heater. Complete with through switch, cord and plug.

Mfrs. No.	Volts	Watts	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
310975	110–120	350	1	1½	**$6.25**

WESTINGHOUSE ELECTRIC WARE

TYPE D AIR HEATERS

1000 Watt Size

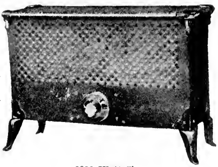
Made in three sizes. They are adapted for the heating of residences or buildings. Particularly useful in the heating of isolated rooms or small buildings which can not conveniently or safely be heated by other methods. Where the cost of power makes their continuous use prohibitive, they may be economically applied for heating during the chilly days of fall and spring.

Heating element is fully protected from electrical and mechanical injury. It heats by circulation of air and radiation. Has substantial terminals and heavy copper connections.

Finished in black japan with highly polished nickel trimmings, no heavy castings—lightest construction possible.

Number includes heater complete with a three-heat snap switch, but no attachment plug. A wall receptacle of ample size should be used.

Standard package, 1 air heater.



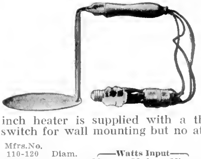
2000 Watt Size

100 to 120 Volts

Mfrs. No.	Watts High	Watts Med.	Watts Low	Appx. Dim. In. Lgth.	Appx. Dim. In. Wdth.	Appx. Dim. In. Hght.	Wt.Lb. Bxd.	Price Each
373504	1000	500	250	11¾	7¼	13⅝	20	**$16.00**
373506	2000	1000	500	18¾	7¼	14	27	**22.50**
373508	3000	1500	750	26¼	7¼	15	32	**30.00**
			200 to 240 Volts					
373505	1000	500	250	11¾	7¼	13⅝	15	**16.00**
373507*	2000	1000	500	18¾	7¼	14	22	**22.50**
373509*	3000	1500	750	26¼	7¼	15	27	**30.00**

*Until present stock is exhausted.

DISC IMMERSION HEATERS



Adaptable for the home and for industrial purposes. The 5 inch heaters have a two heat control switch and separable attachment plug. The 8 inch heater is supplied with a three heat snap switch for wall mounting but no attachment plug.

Mfrs.No. 110-120 Volts	Diam. In.	Watts Input Max.	Watts Input Med.	Watts Input Min.	Shpg. Wt.Lb.	Price Each
151102	5	500	......	125	4	**$13.00**
151106	8	1100	550	275	10	**16.00**

WESTINGHOUSE ELECTRIC WARE

WAFFLE IRONS

Construction is strong, assuring long and satisfactory service. Griddles are cast aluminum and permit the baking of three waffles at one time. A handsome tray makes the apparatus complete. A special feature is the handle which raises and lowers the top griddle and also permits easy carrying. Cord is permanently attached. Complete with tray, flexible cord and through switch. Standard package, 1 waffle iron.

Mfrs. No.	Volts	Watts	Approx. Wt. Lb. Net	Approx. Wt. Lb. Boxed	Price Each
284284	100–110	600	8	10½	**$18.00**
284186	111–120	600	8	10½	**18.00**
284285	200–220	600	8	10½	**18.00**
284187	221–240	600	8	10½	**18.00**

DISC STOVES

Useful for a great variety of purposes in the home and laboratory. Heater supported on metal stand. Cord permanently attached with push button through switch for heat control on single heat disc stove. The three heat disc stove is controlled by a three-heat indicating snap switch. Complete with flexible cord and separable attachment plug. Also indicating push switch with three-heat stoves. Finish nickel. Standard package, 2 assorted stoves.

Mfrs. No.	Volts	Heats	Watts	Shpg. Wt. Lb. Std. Pkg.	Price Each
189204	100–120	1	600	4½ 24	**$8.00**
189198	100–120	3	150–200–600	5 14	**9.50**
270701	200–240	1	600	4½ 24	**8.00**

COFFEE URN HEATERS

Designed for hotel, restaurant and cafeteria use or wherever large coffee urns are employed. Made in two sizes. The 8 inch is for use with 5 and 6 gallon urns, while the 10 inch size is applicable to 10 gallon coffee urns. Both sizes equipped with three-heat indicating snap switches and are mounted on a black japanned steel adjustable base which is used in lowering or raising the heater. Heater can be raised from its original height of 7½ inches to 12 inches. Standard package, 1 coffee urn heater.

Mfrs. No.	Size In.	Heats	Watts	Volts	Wt. Lb.	Price Each
299976	10	3	3000	100–120	20	**$22.00**
299977	10	3	3000	200–240	20	**22.00**
299978	8	3	2000	110–120	15	**16.50**
299979	8	3	2000	200–240	15	**16.50**

WESTINGHOUSE ELECTRIC WARE

HOT PLATES

These hot plates are small electric stoves for hotel, restaurant, cafe and domestic service. No special flat bottomed utensils needed. Non-corrosive material used for heating elements. Deflector plates below the heaters prevent scorching the table.

TYPE 21—THREE HEAT

Has 10 inch heater mounted in black japanned cast steel frame and controlled by three separate switches.

Mfrs. No.	Volts	Size In.	Heat	Watts Max.	Watts Med.	Watts Low	Wt. Lb.	Price Each
266972	110–120	10	3	2000	1334	667	20	**$16.75**
266974	200–240	10	3	2000	1334	667	20	**16.75**

TYPE 31—THREE HEAT

Has 8 inch heater mounted in black japanned cast steel frame and controlled with a three-heat switch.

Mfrs. No.	Volts	Size In.	Heat	Watts Max.	Watts Med.	Watts Low	Wt. Lb.	Price Each
231562	100–120	8	3	1000	500	250	15	**$11.50**
231564	200–240	8	3	1000	500	250	15	**11.50**

TYPE 32—SINGLE HEAT

Has 8 inch heater mounted and equipped with through switch.

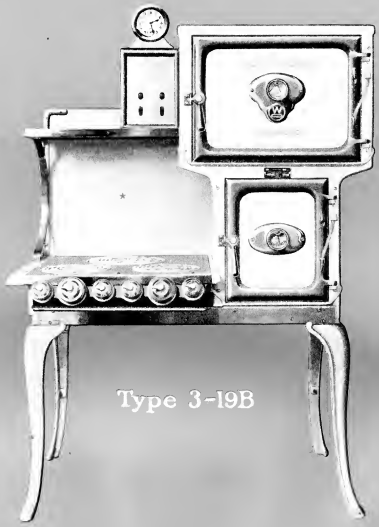
Mfrs. No.	Volts	Size In.	Heats	Watts	Wt. Lb.	Price Each
231567	100–120	8	1	660	10	**$9.00**
231569	200–240	8	1	660	10	**9.00**

TYPE 22—TABLE RANGE

Designed for apartment houses, cafeterias and restaurants. Finished in black japan. The 8 inch heater has a three-heat switch. In the 10 inch heater three separate switches are used. Number includes hot plate with switches as illustrated.

Mfrs. No.	Volts	Maximum Watts	Wiring	Shpg. Wt. Lb.	Price Each
266968	110–220	3000	3	30	**$30.00**
266970	200–240	3000	2	30	**30.00**

Westinghouse White Enamel Range

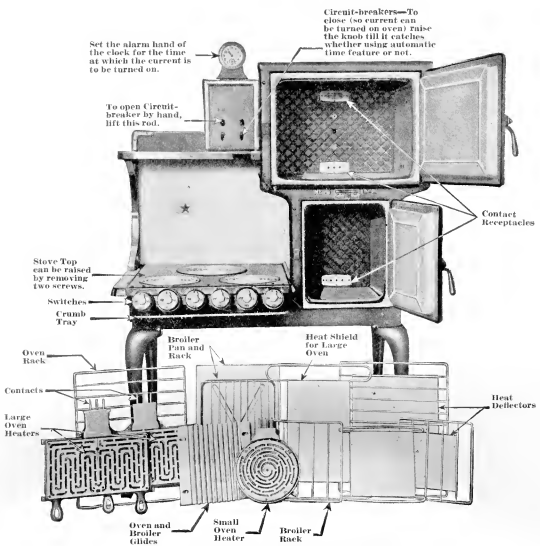


Type 3-19B

Cook by the Clock

WESTINGHOUSE ELECTRIC RANGES

TYPE 3-19B RANGES



Type 3-19B Showing How All Parts Can Be Removed for Thorough Cleaning and the Accessibility of Stove Top Connections

The type 3-19B Ranges are full size family cooking ranges for domestic use, and have reached their high perfection in convenience and economy through many years of experience. In addition to the cleanliness, safety, saving in food and general desirability of cooking with electricity, they have the further advantage of saving a great deal of care, trouble and expense by the aid of the Westinghouse exclusive economical features of full automatic control by attached clock and thermostats.

Distinctive Features

Meals are cooked automatically—without personal supervision. Clock turns current on, and thermostat turns the current off. Economical in operation—automatic control saves current.

Ovens properly ventilated—no disagreeable odors.

All parts accessible for cleaning and repairs.

Ovens can be kept clean and sanitary, as all equipment can be easily removed.

Ovens are of high grade porcelain enamel finish.

All oven burners removable.

Ovens insulated with highest grade of mineral wool.

Tight fitting oven doors with compression latches.

Positive, sure-acting thermostats and thermometers.

Three-heat reciprocating snap switches for all burners.

All switches are oxidized. The dials have white enamel letters to show switch position, and heater platform is lettered in white to show burner controlled.

No dirt, soot, or fumes.

Saving in weights of food cooked.

Superior flavor of electrically cooked food.

WESTINGHOUSE ELECTRIC RANGES

TYPE 3-19B RANGES

OPERATION

The ovens utilize the heat storage principle. Current brings the oven up to the desired temperature, after which the cooking is carried on by stored heat, no further current being required. The good results obtained in the modern type of gas ranges can be surpassed by the electric range, owing to the improved internal ventilating of the ovens and the efficient application of heat. Meats, breads, cakes, pies, etc., can be evenly browned to any degree, top, bottom and sides. Surplus moisture is carried off, condensed and deposited in drip cups provided for the purpose, but no heat is allowed to escape.

The stove top burners are not provided with automatic control, but each is equipped with a three-heat switch, a turn of which brings the burners to a red heat almost instantly. Cooking can be done on these burners with the same ease and rapidity as with any other fuel, without the many disagreeable features.

Attachment Plug—A receptacle is provided on the circuit breaker box of the automatic ranges for attaching a percolator, iron or other appliance. Any appliance connected to this receptacle can also be operated by the clock at any given time, either in conjunction with the ovens or separately.

Current Consumption—Monthly current consumption varies with the requirements of different families. A careful average for many families of four to six persons each, places the current used as 25 kilowatt-hours per person per month, which includes ordinary lights.

CONSTRUCTION OF BURNERS

All burners are of the radiant type.

The heating wires are laid in deep grooves of a molded porcelain brick that will not check nor crack under extreme heat, and is impervious to water, acids and alkalis.

By a special construction of the grooves the coils are prevented from creeping up when heated and coming in contact with the cooking vessels. They are perforated in many points with small openings, which readily allow any liquid which may be spilled on the burner to pass through. Any food that does not pass through the openings will be rapidly burned off leaving the burner clean and white.

These burners respond very quickly to applied current, and heat directly any vessels placed upon them regardless of contact. In case of a burnout they are so simple in construction that any user may replace the burned out coil with a new one in a few minutes with a pair of pliers and a screwdriver.

GENERAL CONSTRUCTION

All parts of the range are of metal. The legs, door frames, etc., are castings; other parts are selected sheet steel. The range is sturdy and well constructed throughout; parts are practically unbreakable and can not work loose. Every part is quickly accessible for thorough cleaning and repairs.

Ovens are high grade porcelain enamel with dark blue finish which increases the efficiency and protects the oven from rusting. They are heavily insulated with the finest grade of mineral wool to reduce to a minimum the loss of heat. A heat shield especially designed, produces an even temperature. All joints are double seamed, and steam tight. Glides fit over studs inside the ovens and are easily removable. Receptacles for the burner contacts are located at the rear of the oven; they are steam tight and need not be removed for cleaning.

Everything can be removed from the oven instantly for cleaning purposes.

Switches—All burners are equipped with three-heat switches with gun metal dials, having indications marked with white enamel lettering which makes them easy to read at a considerable distance from the range. The heater platform is lettered to show which burner each particular switch controls.

The circuit breaker on the automatic range has carbon arcing tips, which allow the metal part of the switch to open before contact is broken on the carbon points. This prevents the metal contact from corroding and pitting due to arcing, and results in good clean contacts at all times, insuring uniform delivery of current. The circuit breaker is made in strict accordance with the Underwriters' requirements, is easily accessible, and can be readily taken apart for inspection or repairs.

Accessibility of Connections—The panel at the rear of the stove is easily removed, uncovering all receptacles, contacts, wires and connections. The back of the circuit breaker box is removed in the same manner, making accessible all working parts of the circuit breaker, clock, switch, and every wire terminating in this box.

Stove Top—By removing two small screws the top can be lifted up and back for repair or inspection, disclosing every contact and connection to the burner and switches.

FINISH

These ranges with their clear cut and well balanced lines present an exceedingly attractive appearance and a harmony of color, which is thoroughly appreciated by the discriminating buyer.

All sheet metal used on the outside of the range is of the best grade obtainable, and has a very high grade black baked japan finish. The thermometer plates, clock, snap switches, shelf trimming and corner supports are nickel plated and polished. The side and back splashers and door panels are of white porcelain enamel, which can be easily cleaned. Crumb trays are aluminum.

COMBINATION GAS AND ELECTRIC RANGES

The type 3-19B and 2-19B can be furnished with combination gas and electric equipment. These are exactly the same as the all electric, with the exception of the stove top burners, which in the combination ranges are replaced by four gas burners. This makes possible the use of gas burners on the stove top, and electricity for the ovens.

One gas burner is extra large, known as the giant burner, in the center of which is a separate and distinct burner of very small capacity used for simmering. Each burner on the range is controlled by an individual lever valve.

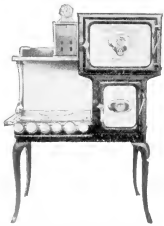
When ordering, specify whether natural or artificial gas is used.

GUARANTEE

Each range is fully guaranteed against mechanical or electrical defects for a period of one year from date of purchase by the user. Should any part prove defective within one year, it will be replaced or repaired free of charge. In all cases, apparatus requiring repairs should be referred to our local service representatives, and where, in line with our guarantee, the service rendered will be free of charge

WESTINGHOUSE ELECTRIC RANGES

TYPE 3-19B AUTOMATIC



Total maximum input, 8000 watts. Average maximum demand, 4000 watts. Heat control: Three-heat reciprocating snap switch for each burner.

Automatic features: Clock automatically starts the cooking in ovens—the heat indicator automatically turns off the current.

Dimensions of range, 43x25 inches—59 inches total height. Height of cooking surface, 31 inches. Size of ovens, large, 18½x13½x16 inches deep; small, 10⅝x13½x11½ inches deep.

For Alternating or Direct Current Circuits

Mfrs. No. Left-Hand Ovens	Mfrs. No. Right-Hand Ovens	Volts	Wiring	Shpg. Wt. Lb.	Price Each
327678	**327680**	110–220	3	440	**$220.00**
327679	**327681**	200–240	2	440	**220.00**
		White Enamel Finish			
328329	**328331**	110–220	3	440	**300.00**
328330	**328332**	200–240	2	440	**300.00**

TYPE 3-19B AUTOMATIC COMBINATION

Total maximum electrical input, 4000 watts. Heat control: Three-heat reciprocating snap switch for each electric burner.

Automatic features: Clock automatically starts the cooking in ovens—the heat indicator automatically turns off the current—gas burners with automatic lighter.

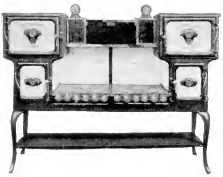
Dimensions of range, 43x25 inches—59 inches total height. Height of cooking surface, 31 inches. Size of ovens, large, 18½x13½x16 inches deep; small, 10⅝x13½x11½ inches deep.

For Alternating or Direct Current Circuits

Mfrs. No. Left-Hand Ovens	Mfrs. No. Right-Hand Ovens	Volts	Wiring	Shpg. Wt. Lb.	Price Each
327710	**327712**	110–220	3	440	**$220.00**
327711	**327713**	200–240	2	440	**220.00**

WESTINGHOUSE ELECTRIC RANGES

TYPE 3-19B DOUBLE AUTOMATIC



Total maximum input, 16,000 watts. Average maximum demand, 8000 watts. Heat control: Three-heat reciprocating snap switch for each burner.

Automatic features: The clock automatically starts the cooking in ovens—the heat indicator automatically turns off the current.

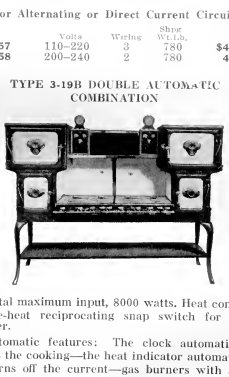
Dimensions of range, 84x28 inches—61 inches total height. Height of cooking surface, 31 inches. Size of ovens, large, 18½x13½x16 inches deep; small, 10⅝x13½x11½ inches deep.

Also furnished with one gas top and one electric.

For Alternating or Direct Current Circuits

Mfrs. No.	Volts	Wiring	Shpg. Wt. Lb.	Price Each
327857	110–220	3	780	**$440.00**
327858	200–240	2	780	**440.00**

TYPE 3-19B DOUBLE AUTOMATIC COMBINATION



Total maximum input, 8000 watts. Heat control: Three-heat reciprocating snap switch for each burner.

Automatic features: The clock automatically starts the cooking—the heat indicator automatically turns off the current—gas burners with automatic lighter.

Dimensions of range, 84x28 inches—61 inches total height. Size of ovens, large, 18½x13½x16 inches deep; small, 10⅝x13½x11½ inches deep.

For Alternating or Direct Current Circuits

Mfrs. No.	Volts	Wiring	Shpg. Wt. Lb.	Price Each
327863	110–220	3	780	**$440.00**
327864	200–240	2	780	**440.00**

WESTINGHOUSE ELECTRIC RANGES

TYPE 2-19B HALF-AUTOMATIC

Total maximum input, 7000 watts. Average maximum demand, 3500 watts. Three-heat reciprocating snap switch for each burner. Heat indicator automatically turns off the current. Dimensions range, 32 x 24½ inches, 34 inches total height. Height of cooking surface, 34 inches. Size oven, 18½x13½x16 inches deep.

Can be furnished semi-automatic equipped with thermostats connected to call bell which attracts operator when predetermined temperature has been reached.

For Alternating or Direct Current Circuits

Mfrs. No.	Volts	Wiring	Shpg. Wt. Lb.	Price Each
327948	110–220	3	255	**$150.00**
327949	200–240	2	255	**150.00**
246232	High-Back Warming Shelf			**10.00**

TYPE 2-19B HALF-AUTOMATIC COMBINATION

Total maximum input, 3000 watts. Three-heat reciprocating snap switch for each burner. The heat indicator turns off the current; gas burners with automatic lighter.

Dimensions range, 32x 24½ in., 34 in. total height. Height of cooking surface, 34 in. Size oven, 18½x13½x16 in. deep.

For alternating or direct current circuits.

For Alternating or Direct Current Circuits

Mfrs. No.	Volts	Wiring	Shpg. Wt. Lb.	Price Each
327952	110–220	3	255	**$150.00**
327953	200–240	2	255	**150.00**
246232	High-Back Warming Shelf			**10.00**

AUTOMATIC TIME SWITCH FOR TYPE 2-19B RANGE

Type 2-19B half-automatic range has automatic temperature control, but no automatic time control to turn on the current at a predetermined time. To provide this feature the type 2-19B automatic time switch is supplied.

The outfit consists of a single pole double throw knife switch contained in a metal wall box, and a clock. All parts are interchangeable.

Mfrs. No.	Description	Price Each
269231	Switch and Clock	**$13.50**

WESTINGHOUSE ELECTRIC RANGES

TYPE 515 RANGE

The 515 range was designed to meet the needs of those who desire a small electric range. It is especially adapted for use in apartment houses, sea shore homes and kitchenettes, as it takes up only a small amount of floor space. Hot plates are controlled by three-heat reciprocating snap switches which clearly indicate three temperatures which may be obtained.

Oven is fully equipped with oven heaters, racks, broiler and tray. The oven door opens down forming a shelf on which food may be rested before placing it in the oven.

Total maximum input, 5000 watts. Average maximum demand 2500 watts. Dimensions of range, 31 inches high, top 24½x16½ inches. Height of cooking surface, 31 inches. Size oven, 12x16x12 inches deep.

Can Be Furnished with High-Back Warming Shelf

Mfrs. No.	Volts	Wiring	—Wt. Lb.— Net	Shpg.	Price Each
327884	110–220	3	80	100	**$67.50**
327886	200–240	2	80	100	**67.50**
283367	High-Back Warming Shelf				**7.50**

ELECTRIC COOKING ACCESSORIES FOR TYPE 3-19B RANGE

Cooker Pot **Clover Leaf Vessel**

Great economy can be effected in electric ranges by doing all boiling in the ovens. The clover-leaf set and the cooker pot are built especially for these ranges. The vessels are of specially heavy gauge aluminum, well made and very substantial.

The clover-leaf set consists of three triangular vessels, each holding two quarts. All three vessels can be placed in the small oven of the type 3-19B range so that three vegetables can be boiled separately at the same time.

The cooker pot is a round 2½ quart vessel which fits over the clover-leaf set or can be used separately. It is useful in preparing boiled meats, stews, etc.

Mfrs. No.	Description	Price Each
278401	Clover-Leaf Set (three vessels)	**$4.00**
278402	Cooker Pot	**2.00**

WESTINGHOUSE AUTOMATIC ELECTRIC BAKE OVENS

For Commercial Baking

SECTIONAL TYPE

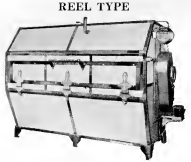
The sectional type automatic bake ovens are built on the principle of the "Sectional Book Case"—one section for the small bakery and two or more sections for the larger bakery. This permits the purchase of as many sections as are needed for the initial demands of the baker's business and then the purchase of additional units as the business grows and more output is needed. These ovens are used for baking of bread, pies, cakes, pastries and other sweet goods. The hearth tile permits the baking of hearth bread as in the old brick ovens.

Size of Ovens—The two standard oven units are:

20 loaf section (one pound loaves)
60 loaf section (one pound loaves)

Automatic Control—Each section is equipped with a motor operated snap switch and electric contact control thermostat for maintaining the temperature at any point desired. The 20 loaf section has one motor operated snap switch and the 60 loaf section has two motor operated snap switches mounted on the right side panel of each section. The thermostat is adjusted by means of a small arm projecting through the metal box on the side of the oven. The thermostat can be adjusted over a temperature range of 300 to 500 degrees, Fahrenheit.

REEL TYPE



Automatic Electric Reel Type Bake Oven Finished in White Vitreous Enamel Trimmed With Nickel

Application—Baking of bread, cakes, pies, pastries, etc.

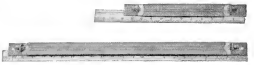
Construction—Shelves, hung on a revolving reel, form the baking surface. Door when open forms a convenient shelf for loading and unloading. A one-sixth horse power motor revolves the reel and shelves. The oven is built of heat insulating material between sheet steel panels finished in white enamel with nickel frame.

Operation—Push button on oven starts the oven to heating and tumbler switch starts the motor. Thermostat with proper setting determines the temperature in the oven which is maintained automatically.

Heating—Can be heated to 450 degrees Fahrenheit in 45 minutes. Temperature range is 300 to 500 degrees Fahrenheit.

WESTINGHOUSE INDUSTRIAL HEATING APPLIANCES

SPACE HEATERS



Standard 12 and 24 Inch Space Heaters

Space heaters are made in three standard sizes: 12 inch rated 220 watts, 24 inch rated 500 watts and 44 inch rated 1250 watts. The enclosed element feature makes them absolutely safe from fire hazard. Maximum temperature is 800 degrees Fahrenheit.

Price on Application

ELECTRIC STEEL-CLAD HEATERS

Enclosed element steel clad heaters with single end terminals are used in mold drying machines and composition molding presses. They are flat heaters which can be mounted against any metallic surface or imbedded in platen plates. Maximum temperature is 450 degrees Fahrenheit.

Price on Application

CHOCOLATE WARMERS

Electrically Heated Chocolate Warmer

Chocolate Warmers used in heating of chocolate in manufacture of all kinds of chocolate candy insure a uniform temperature at a very low cost and with maximum cleanliness and sanitation. Chocolate Warmers are made in 6 and 10 quart sizes with three heat temperature control.

Price on Application

CARTRIDGE HEATERS

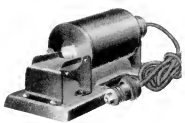
Cartridge Type Heater

Special applications where heat is required in metal platens use cartridge heaters in large quantities. The rubber industry and cigarette manufacturers find these heaters very satisfactory for obtaining the proper amount of heat at concentrated places.

Price on Application

WESTINGHOUSE INDUSTRIAL HEATING APPLIANCES

TUBE FURNACES



Used for heating small soldering irons and calibrating pyrometers. They are also very handy heaters for jewelers, chemists and telephone repair shops. Made in one inch size, 150 watts. The maximum temperature obtainable is 1600 degrees Fahrenheit.

Price on Application

GRID HEATERS

Immersion element grid heaters for heating oil tempering tanks are usually mounted in the bottom of the tank. They are also applied to the manufacture of paints and oils. Automatic control can be supplied with such applications. Maximum temperature is 700 degrees Fahrenheit.

Price on Application

ELECTRICALLY HEATED GLUE POT

Electric glue pots with rheostatic temperature control insure correct glue temperature because there are approximately 300 steps on the controlling rheostat. Glue pots are made in 1 pint, 1 quart, 2 quart and 4 quart sizes.

Price on Application

SOLDER POTS

Solder pots are used for melting solder, babbitt, tin, lead and other similar metals. They are made in 10 pound, 30 pound, 150 pound and 750 pound sizes. The first two sizes have three heat control while the last two are equipped with automatic temperature control.

30 Pound Solder Pot

Price on Application

WALLACE BENCH GLUE POT

AUTOMATIC HEAT CONTROL

Everyone of experience in the preparation, handling and use of glue realizes fully the necessity of maintaining it at proper temperature. If overheated even to 176° F., glue loses much of its tensile strength; if allowed to fall below 140° F. there is a decided and sometimes disastrous fluctuation in the strength of the joints. The most favorable temperature, as determined by official tests, is between 140° and 150° F., at which point glue assumes its greatest tensile strength and viscosity.

The Wallace bench glue pot eliminates human responsibility in the care of glue, and substitutes a simple but absolutely positive and reliable automatic control. This control maintains the glue always at the correct temperature.

When the glue reaches the desired temperature, the control turns off the current; when the temperature drops a few degrees, the current is automatically turned on again. It will not heat above 150° F., nor allow the temperature to fall below 140° F.

Whether the outer container has water in it or not, the heat cannot rise above the predetermined temperature and hence both fire hazard and danger of burning out the heating elements are eliminated. It is to be noted that these elements are designed for continuous service at a temperature more than twice that required for cooking glue.

Can be used as glue cooker, or as warming pot in connection with central glue cooker. Heats quickly, thus saving time in getting work under way. Maintains heat with minimum expenditure of electricity.

For Alternating Current Circuits

Mfrs. No.	Volts	Watts	Glue Cap. Quarts	Wt. Lb. Packed	Price Each
G2	110 or 220	600	2	20	**$31.00**
G4	110 or 220	600	4	45	**39.50**
G8	110 or 220	800	8	65	**44.00**

For Direct Current Circuits

G2	110 or 220	600	2	20	**33.50**
G4	110 or 220	600	4	45	**42.00**
G8	110 or 220	800	8	65	**49.00**

All orders must indicate exact voltage and current required. The standard heating elements are for 110 volts, but elements for other voltages can be supplied without increase in price. The pots for direct current can be used on alternating current circuits, but the alternating current pots cannot be used on direct current circuits.

AMERICAN BEAUTY ELECTRIC HEATING DEVICES

AMERICAN BEAUTY IRON

No. 6½B

Polished nickel. Furnished complete with stand and cord having detachable composition plug and attachment plug.

Mfrs No	Length In	Width In.	Watts	Wt. Lbs.	Price Each
6½B	6½	3¾	525	6½	**$7.50**

Made in the following standard voltage ranges: 95-104, 105-120, 121-130, 190-209, 210-240, 241-260.

Also furnished in 32 volts.

AMERICAN BEAUTY PRESSING IRON

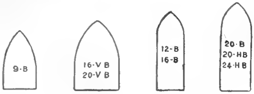
Furnished complete with stand and six foot cord having detachable metal sheathed plug. Lamp socket plug is not supplied with this iron. Polished nickel finish.

No. 9B

Mfrs. No.	Length In.	Width In	Watts	Wt. Lbs.	Price Each
9B	7 3/16	4¼	675	9	**$9.50**

Made in the following standard voltage ranges: 95-104, 105-114, 115-125, 190-209, 210-229, 230-250.

AMERICAN BEAUTY PRESSING IRONS



Mfrs. No.	Size Bottom In.	Watts	Net Wt. Lbs.	Shpg. Wt. Lbs.	Price Each
12B	9⅝x3 5/16	650	12	16	**$15.00**
16B	9⅝x3 5/16	650	16	20	**16.00**
20B	11 x3¾	750	20	25	**17.50**
20HB	11 x3¾	1000	20	25	**18.50**
24HB	11 x3¾	1000	24	30	**19.00**
16VB	8½x5⅝	1100	16	25	**20.00**
20VB	8½x5⅝	1100	20	28	**21.50**

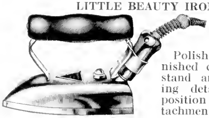
The relative shapes and sizes of the iron bottoms may be seen from the above illustrations. All of these irons are made in the following standard voltage ranges: 95-104. 105-114, 115-125, 190-209, 210-229, 230-250.

Each iron is packed in a separate case, furnished complete with stand and six foot cord having detachable metal sheathed plug.

Lamp socket attachment plugs are not supplied with these irons.

AMERICAN BEAUTY ELECTRIC HEATING DEVICES

LITTLE BEAUTY IRON



No. 3B

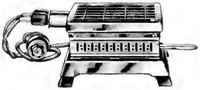
Polished nickel. Furnished complete with stand and cord having detachable composition plug and attachment plug.

Mfrs. No	Length In.	Width In	Watts	Wt. Lbs.	Price Each
3B	5⅞	3⅛	350	3	**$7.00**

Standard voltage ranges 95-104, 105-120, 121-130, 190-209, 210-240, 241-260.

AMERICAN BEAUTY GLOWER STOVE

Furnished complete with six foot cord with detachable porcelain plugs and attachment plug.



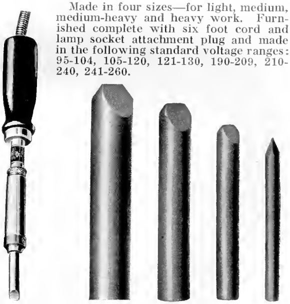
No. 3350G

Mfrs. No.	Dimen., In. Top	Dimen., In. Hght.	Watts	Net Wt. Lbs.	Apx. Shpg. Wt. Lbs.	Price Each
3350G	5x5	3⅝	500	1¾	2	**$5.75**

Made in the following standard voltage ranges: 95-109, 110-125, 190-219, 220-250.

AMERICAN BEAUTY ELECTRIC SOLDERING IRONS

Made in four sizes—for light, medium, medium-heavy and heavy work. Furnished complete with six foot cord and lamp socket attachment plug and made in the following standard voltage ranges: 95-104, 105-120, 121-130, 190-209, 210-240, 241-260.



No. 3138 No. 3798 No. 3778 No. 3758 No. 3738

Mfrs. No.	Watts	Dia. of Tip, In.	Out. Dia. O'all, In.	Length O'all, In.	Wt. Oz	Price Each
3138	100	⅜	⅞	12¼	18	**$8.00**
3158	200	⅝	1¼	13	26	**9.25**
3178	300	⅞	1 9/16	13¾	42	**11.50**
3198	550	1⅛	2½	15	72	**19.50**

EXTRA COPPER TIPS

Mfrs. No.	Description	Wt. Oz.	Price Each
3738	For No. 3138	2½	**$0.85**
3758	For No. 3158	7	**1.50**
3778	For No. 3178	16	**2.30**
3798	For No. 3198	29	**3.00**

ARMSTRONG TABLE STOVE AND WAFFLE IRON

Distinctive square design. Three distinct cooking operations at same time. Toasts both sides of bread at once. Non-areing, non-sticking switch plug perfectly controls the heat.

Cooking utensils made of pure aluminum. Heat chamber finished in glistening, white enamel; does not discolor from heat; easily cleaned. Boils, broils, toasts, fries, poaches, steams—makes waffles, too.

Made of pressed steel, nickel plated. Size of cooking utensil, 7 inches square. Size of base, 7¾ inches square. Height (as shown above), 6⅝ inches.

Each stove packed in a carton. Six stoves packed in shipping carton. Shipping weight, 7 pounds each.

Waffle Iron Attachment

	Price Each
Table Stove, Including Complete Set of Utensils, consisting of Deep Broiling Pan, 4 Egg Cups and Rack, Griddle and Toaster	$12.50
Waffle Iron	4.00

EXTRA UTENSILS AND PARTS FOR ARMSTRONG TABLE STOVE

	Price Each
Heating Chamber Complete with Element, Supports, Guards, Contacts, Etc.	$4.00
Deep Pan, with Handle, Aluminum	1.50
Broiler Plate, Steel	.30
Egg Poacher, Frame, Aluminum	.60
Egg Cups, Each, Aluminum	.15
Deflector or Shallow Pan, Aluminum, with Handle	.90
Griddle, Aluminum, with Handle	1.30
Side Supports, Each	.25
Base, with Fiber Legs	1.00
Cord and Plugs, Complete, 6 Foot Length	1.50
Extra Length Cords, Over 6 Ft., Add Per Ft.	.10
Spring, for Cord	.10
Switch Plugs, with Internal Parts, Complete	.35
Switch Plugs, Moulded Parts Only, Per Pair	.25
Contacts for Body of Stove, Complete with Mica Washers, Screws and Clay Piece, Per Set	.25
Long Handles, with Screw	.15
Short Handles, with Screw and Nut	.10
Heating Element, for Rewiring, with Wood Form and Instruction Sheet	.75
Toaster Drawer, with Handle	.60

SUNSHINE ELECTRIC CLEANERS

The Sunshine electric cleaner is so designed that it is simple in operation yet will perform every function to be expected of an electric cleaner. There are many built-in features and special advantages, notably an improved motor installation and oiling system in which the motor is an independent unit. All parts are instantly accessible for inspection. There are only two places to oil the motor; the oil is led to motor shaft as needed, insuring perfect lubrication at all times.

Specifications

Sturdy, rigid construction. Weight, 11 pounds; easy to carry around the house, upstairs and down. Cleans under low furniture having 7 inch clearance. Trigger switch on handle to start or stop motor—positive in action. Handle grip fits the hand. Straight part of handle made of tubing—stronger than wood and equally light. Rigid die cast handle fork permitting no side sway. Improved handle adjusting device—locks handle in any position desired. Semi-hard rubber carrier wheels which are noiseless and will not mar hardwood floors. A swivel rear caster adds to ease of operation and also serves as means of adjusting nozzle. A generous size dustbag made of special material, sufficient in size to handle the large volume of air moved by the cleaner. The dustbag being on the side of the handle opposite from operator is out of the way. Can be attached and replaced easily and quickly by a new device. A bristle brush attached to nozzle. Furnished with approved cord of ample length and separable plug for quick and easy connection. The nozzle unit is attached or detached by simple movement of a lever. The main attachment unit is operated in like manner.

Mfrs. No.	Description	Price Each
207397	Sunshine Cleaner Only	$57.50
207398	Sunshine Attachments (Complete Set)	10.00

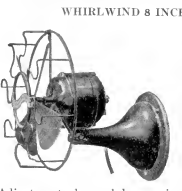
Further information on request.

ATTACHMENTS

Sunshine attachments consist of six special tools, each designed to deliver maximum cleaning efficiency.

WESTINGHOUSE ELECTRIC FANS

WHIRLWIND 8 INCH FANS



Base, motor body and end brackets are of drawn steel, blades and guard of steel. Finish, dull black on all parts. Single speed. Separable plug to turn current on or off. Fan can be tilted 15 degrees forward, or 90 degrees backward for wall mounting. Adjustment clamped by a wing nut. Each fan packed in separate box. Standard package consists of ten fans. Bulk package consists of five standard packages. Fan complete with separable attachment plug and 6 foot cord.

Four Blade

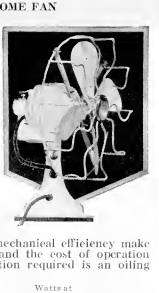
Mfrs. No.	Frequency Cycles	Volts	Watts at High Speed*	Avg. RPM*	Wt.Lb. Boxed	Price Each
280598	60	100–120	30	1575	11	**$10.00**
280729	50	100–120	27	1900	11	**10.00**
280698‡	40	110–125	30	1840	10	**10.00**
	25–30	100–125	31	1800	10	
	D.C.	100–125	33	1950	10	
280727	D.C.	24–32	33	1950	10	**10.00**

For 220 volt, alternating or direct current fans, add **$1.50** to above prices.

*Watts, speed and air delivery may vary 10 per cent from figures given.

‡These fans have series motors.

THE HOME FAN



Ivory colored finish. Furnished only in 10 inch oscillating type. Mechanically, the fan is a duplicate of the standard black finish 10 inch fan. Merely loosening a thumb-nut makes it possible to convert the fan from a desk to a bracket type, or back again. The arc of oscillation is 90 degrees, and a simple mechanical adjustment is all that is necessary to change it to 45 degrees.

High electrical and mechanical efficiency make the air delivery large and the cost of operation small. The only attention required is an oiling once a season.

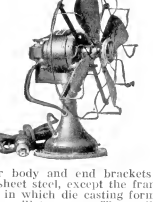
Mfrs. No.	Frequency Cycles	Volts	Watts at High Speed*	Wt.Lb. Boxed	Price Each
363329	60	100–120	36	19½	**$24.00**
363328	D. C. to 40	100–125	36	18½	**24.00**

Average RPM No. 363329 is 1450, 1250 and 1100. No. 363328 is 1625, 1525 and 1225.

*Watts, speed and air delivery may vary 10 per cent from figures given.

WESTINGHOUSE ELECTRIC FANS

10 INCH DESK AND BRACKET TYPES



Base motor body and end brackets are each drawn from sheet steel, except the frame part of the oscillator in which die casting forms the motor body and oscillator case. The oscillating mechanism is the same as that on the larger fans, except it is more compact. Induction motors used for 60 cycle fans, series motors for 40 cycle, 50 cycle and 25-30 cycle alternating current and direct current fans.

Standard finish is dull black or an attractive ivory tint, smooth and lustrous—no joints, ridges or rough spots. Fan blades are steel, lacquered a dull black. Guard is steel, finished in black to match the rest of the fan.

Three speeds, 1, off; 2, high speed; 3, medium speed; 4, low speed.

Lubrication is obtained by grease cups with spring-operated felt wicks, requiring attention only once a season.

Non-oscillating fan can be tilted 15 degrees forward or 90 degrees backward. Oscillating fan can be tilted 20 degrees forward or backward in desk position, and 20 degrees forward in bracket position, with a set screw to prevent slipping beyond this angle. Adjustment clamped by a wing nut.

Arc of oscillation is 90 degrees as shipped. Can be changed easily to 45 degrees.

Number and price include fan complete with separable attachment plug and 8-foot cord.

Non-Oscillating Fans

Mfrs. No.	Frequency Cycles	Volts	Watts at High Speed	Wt.Lb. Net	Wt.Lb. Boxed	Price Each
241842	60	100–120	35	7	16	**$18.50**
274734*	50	100–120	35	7	16	**18.50**
272852*	40	100–125	24	7	16	**18.50**
	25–30	100–125	29	7	16	
	D. C.	100–125	35	7	16	
241835	D. C.	24–32	35	7	16	**18.50**

Oscillating Fans

363329	60	100–120	36	9	19½	**24.00**
241853	60	100–120	36	9	19½	**23.00**
274735*	50	100–120	36	9	19½	**23.00**
272854*	40	110–125	26	8	18½	**23.00**
	25–30	100–125	30	8	18½	
	D. C.	100–125	36	8	18½	
241846	D. C.	24–32	36	8	18½	**23.00**
363328	DC to 40	100–125	36	8	18½	**24.00**

For 220 volt, alternating or direct current fans add **$1.50** to above prices.

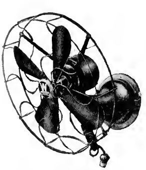
Nos, 363328 and 363329 are enameled in an old ivory finish, with nickel plated trimming.

*These fans have series motors.

Average RPM at different speeds on application.

WESTINGHOUSE ELECTRIC FANS

12 AND 16 INCH DESK AND BRACKET TYPES

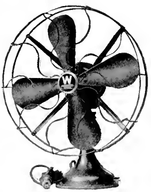


12 Inch Non-Oscillating Fan

Base, motor body and end brackets are each drawn from a disc of $\frac{5}{64}$ inch sheet steel. Induction motors used for 60 cycle, 50 cycle and 40 cycle alternating current fans. Series motors for 25 cycle alternating current and for direct current fans. Standard finish is dull black, smooth and lustrous—no joints, ridges or rough spots. Fan blades are finished in a dull black.

Three speeds, 1, off; 2, low speed; 3, medium speed; 4, high speed. Motors start on any speed. Heavy steel guard, finished in dull black, supported by four pressed steel arms.

Number and price include fan complete with separable attachment plug and 8 foot cord.



16 Inch Non-Oscillating Fan

12 Inch Non-Oscillating Fans

Mfrs. No.	Frequency Cycles	No. of Blades	Volts	Watts at High Speed*	Average RPM*	Cu Ft. Air Per Min.	Approx. Wt. Lb. Net	Approx. Wt. Lb. Boxed	Price Each
315734	60	4	100–120	46	1025, 850, 700	850	15¼	28¼	**$23.50**
162628	60	4	100–120	46	1585, 1460, 1230	845	15	28	**23.50**
315732	50	4	100–120	45	875, 790, 700	730	15¼	28¼	**23.50**
163537	50	4	100–120	45	1390, 1250, 1150	740	15	28	**23.50**
315730	40	4	110–125	43	990, 850, 700	800	15¼	28¼	**24.50**
162624	40	6	110–125	43	990, 850, 700	800	15¼	28¼	**24.50**
315728†	25–30	4	100–125	36	1050, 800, 500	870	13¼	26¼	**25.00**
162620†	25–30	4	100–125	30	1600, 1250, 850	850	13	26	**25.00**
315726	D.C.	4	100–125	31	1150, 925, 680	950	13¼	26¼	**23.50**
162637	D.C.	4	100–125	27	1600, 1300, 1000	850	13	26	**23.50**
315725	D.C.	4	24–32	31	1150, 925, 675	950	13¼	26¼	**23.50**
180175	D.C.	4	24–32	27	1600, 1300, 1000	850	13	26	**23.50**

12 Inch Oscillating Fans

Mfrs. No.	Frequency Cycles	No. of Blades	Volts	Watts at High Speed*	Average RPM*	Cu Ft. Air Per Min.	Approx. Wt. Lb. Net	Approx. Wt. Lb. Boxed	Price Each
315745	60	4	100–120	48	1025, 900, 800	850	16¾	31¼	**30.00**
164848	60	4	100–120	48	1600, 1480, 1330	850	16½	31	**30.00**
315743	50	4	100–120	47	875, 825, 790	730	16¾	31¼	**30.00**
164867	50	4	100–120	47	1390, 1300, 1220	740	16½	31	**30.00**
315741	40	4	110–125	45	990, 870, 800	800	16¾	31¼	**31.00**
315739†	25–30	4	100–125	38	1050, 800, 500	870	14¼	28¾	**31.50**
164860†	25–30	4	100–125	32	1600, 1250, 850	850	14	28½	**31.50**
315737	D.C.	4	100–125	32	1150, 925, 675	950	14¼	28¾	**30.00**
164854	D.C.	4	100–125	28	1600, 1300, 1000	850	14	28½	**30.00**
315736	D.C.	4	24–32	32	1150, 925, 765	950	14¼	28¾	**30.00**
180176	D.C.	4	24–32	28	1600, 1300, 1000	850	14	28¼	**30.00**

16 Inch Non-Oscillating Fans

Mfrs. No.	Frequency Cycles	No. of Blades	Volts	Watts at High Speed*	Average RPM*	Cu Ft. Air Per Min.	Approx. Wt. Lb. Net	Approx. Wt. Lb. Boxed	Price Each
321336	60	4	100–120	86	975, 800, 500	1600	19½	36½	**27.00**
162631	60	4	100–120	94	1500, 1250, 1000	1600	20	37	**27.00**
321334	50	4	100–120	80	875, 800, 625	1400	19½	36½	**27.00**
163540	50	4	100–120	74	1300, 1150, 1000	1400	20	37	**27.00**
321332	40	4	100–125	90	1000, 900, 800	1625	19½	36½	**28.00**
321330†	25–30	4	100–125	70	1050, 850, 650	1725	15½	32½	**28.50**
126622†	25–30	4	100–125	70	1600, 1250, 950	1725	16	33	**28.50**
321328	D.C.	4	100–125	63	1050, 850, 650	1725	15½	32½	**27.00**
162639	D.C.	4	100–125	64	1600, 1250, 1000	1725	16	33	**27.00**
321327	D.C.	4	27–32	63	1050, 850, 650	1725	15½	32½	**27.00**
287024	D.C.	4	27–32	64	1600, 1250, 1000	1725	16	33	**27.00**

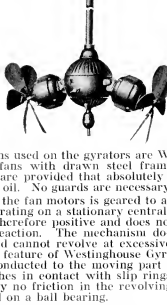
16 Inch Oscillating Fans

Mfrs. No.	Frequency Cycles	No. of Blades	Volts	Watts at High Speed*	Average RPM*	Cu Ft. Air Per Min.	Approx. Wt. Lb. Net	Approx. Wt. Lb. Boxed	Price Each
321347	60	4	100–120	88	975, 850, 725	1600	20½	40½	**35.00**
164851	60	4	100–120	96	1500, 1325, 1050	1600	21	41	**35.00**
321345	50	4	100–120	82	875, 800, 700	1400	20½	40½	**35.00**
164870	50	4	100–120	75	1300, 1250, 1150	1400	21	41	**35.00**
321343	40	4	110–125	92	1000, 950, 875	1625	20½	40½	**36.00**
321341†	25–30	4	100–125	72	1050, 850, 650	1725	17½	37½	**36.50**
164862†	25–30	4	100–125	72	1600, 1250, 950	1725	18	38	**36.50**
321339	D.C.	4	100–125	65	1050, 850, 650	1725	17½	37½	**35.00**
164856	D.C.	4	100–125	66	1600, 1250, 1000	1725	18	38	**35.00**
321338	D.C.	4	27–32	65	1050, 850, 650	1725	17½	37½	**35.00**
287045	D.C.	4	27–32	66	1600, 1250, 1000	1725	18	38	**35.00**

For 220 volt alternating or direct current fans add **$1.50** to prices given above. Fans for 24 to 32 volts direct current will be furnished at same prices as 100-125 volt direct current fans. 220 volt and 30 volt fans are not usually carried in stock. 6 blade fans supplied until stock of parts is exhausted. *Watts, speed and air delivery may vary 10 per cent from figures given. †These fans have series motors.

WESTINGHOUSE ELECTRIC FANS

GYRATING TYPE



The fans used on the gyrators are Westinghouse 12 inch fans with brown steel frames. Special bearings are provided that absolutely prevent the escape of oil. No guards are necessary.

One of the fan motors is geared to a mechanical drive operating on a stationary central pulley. The drive is therefore positive and does not vary with the air reaction. The mechanism does not slow down, and cannot revolve at excessive speed—an exclusive feature of Westinghouse Gyrators. Current is conducted to the moving part by two carbon brushes in contact with slip rings. There is practically no friction in the revolving part, as it is carried on a ball bearing.

Breeze at any angle desired, from horizontal to 35 degrees below horizontal, can be had, by a positive wing-nut adjustment at the side of the gyrating body. Turning this wing-nut raises or lowers the angle of both fans simultaneously. There is no possibility of tilting one fan more than the other and thus deranging the balance. The fans revolve about seven times a minute. Gyrating at higher speeds than this, the fans would tend to churn the air, restricting the distribution.

Ceiling type should be so mounted that, with the fans tilted to their limit, the lowest point of the blades is 7½ feet from the floor. Standard fans, including hanger rod, measure 55 inches from ceiling to lowest point of blades, suitable for 12 foot ceilings. Where ceilings are higher additional length of hanger rod should be ordered. The convenient pull switch on these fans can be operated from the floor.

Standard finish of all gyrating fans is dull black for all parts.

Mfrs. No.	Frequency Cycles	Volts	Watts*	Average R.P.M.*	Wt. Lb. Boxed	Price Each
			Ceiling Type			
221499	60	100-120	88	1050	103½	**$65.00**
221497	50	100-120	74	925	103½	**65.00**
221495	40	110-125	84	1075	103½	**68.00**
221493	25-30	100-125	76	1050	103½	**68.00**
221491	D.C.	100-125	64	1050	101	**65.00**
			Counter Column Type			
222092	60	100-120	88	1050	139½	**110.00**
222090	D.C.	100-115	64	1050	137	**110.00**
			Floor Column Type			
221503	60	100-120	88	1050	213½	**110.00**
221501	D.C.	100-115	64	1050	211	**110.00**

For 220 volt alternating current or direct current fans add **$3.00** to prices given above. 220 volt fans are not usually carried in stock.

Guards will be furnished, if desired, at an added cost of **$2.50** net per fan.

*Watts, speed and air delivery may vary 10 per cent from figures given.

WESTINGHOUSE ELECTRIC FANS

32 INCH AND 56 INCH CEILING FANS

Standard fans throw the air downward, but if desired, the blades can be arranged to draw the air upward (reverse air flow), a desirable arrangement in places where the fan might disturb papers, as in offices and banks. Fans arranged for reverse air flow are not carried in stock, but are supplied on special order without extra charge.

The standard finish is black enamel. Special finishes can be supplied at an advance in price, and subject to approximately fifteen days additional time for delivery.

Alternating current motors are of the induction type; direct current motors are series wound.

The lubricating system of the motors deserves special mention. Oil is poured in through an oil hole at the top of the motor and runs into a reservoir around the bearings. The bearings are, therefore, immersed in oil. When the motor is in operation the oil is pumped upward along the shaft by means of a spiral groove on the shaft and flows back into the reservoir again. By this means a circulation of the lubricant is assured and one oiling suffices for the season.

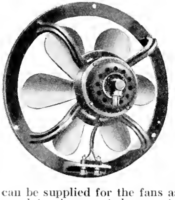
Each fan has four blades. The blades are of wood with mahogany finish on the 56 inch and are of rust resisting metal on the 32 inch.

Mfrs. No.	Frequency Cycles	Watts at High Speed*	Average R.P.M.*	Wt. Lb. Boxed	Price Each
		56 Inch 4-Blade Ceiling For 100-120 Volt Circuits			
115725	60	150	225, 160	100	**$52.00**
164300	50	160	225, 160	100	**52.00**
115729	40	170	195, 160	100	**58.00**
115727	25-30	155	225, 165	100	**58.00**
		For 100-125 Volt Circuits			
196122	D.C.	110	225, 160, 100	100	**52.00**
		For 27-32 Volt Circuits			
293368	D.C.	110	225, 160, 100	100	**52.00**
		36 Inch 4-Blade Ceiling For 100-120 Volt Circuits			
393177	60	100	440	48	**42.50**
		32 Inch 4-Blade Ceiling For 100-120 Volt Circuits			
164948	60	70	440	45	**40.00**

For 220 volt alternating or direct current fans add **$1.50** to the prices given above. 220 volt fans are not usually carried in stock.

*Watts, speed and air delivery may vary 10 per cent from figures given.

WESTINGHOUSE EXHAUST FANS



For removing foul air and odors from kitchens, lavatories, theatres, restaurants, school rooms and other places requiring ventilation.

The 25-30 cycle fans are supplied with four blades, and the 40, 50 and 60 cycle fans are supplied with six blades. Motors are single speed but a speed regulator can be supplied for the fans as listed below. The regulator is mounted separately from the fan at any convenient location. The regulator is operated by means of a lever. Motor and frame are finished in black enamel. The six blades are finished in dull black.

12 Inch Fans—Horizontal Delivery

Mfrs. No.	Freq. Cls.	Cu.Ft. Air Per Min.	Volts	Watts at High Speed *	Av'g. RPM *	Wt. Lb. Boxed	Price Each
251415	60	860	100-120	42	1050	35	**$29.00**
251413	50	725	100-120	46	900	35	**29.00**
251411	40	840	110-125	43	1000	35	**30.00**
251409	25-30	850	105-115	36	1050	33	**30.50**
251407	D.C.	935	100-115	32	1150	33	**29.00**
251406	D.C.	1725	24-32	63	1050	44	....

12 Inch Fans—Vertical Delivery

Mfrs. No.	Freq. Cls.	Cu.Ft. Air Per Min.	Volts	Watts at High Speed *	Av'g. RPM *	Wt. Lb. Boxed	Price Each
270796	60	720	100-120	40	1070	35	**29.00**
270795	D.C.	735	100-120	32	1050	33	**29.00**

16 Inch Fans—Horizontal Delivery

Mfrs. No.	Freq. Cls.	Cu.Ft. Air Per Min.	Volts	Watts at High Speed *	Av'g. RPM *	Wt. Lb. Boxed	Price Each
251425	60	1665	100-120	93	1000	47	**33.00**
251423	50	1480	100-120	86	900	47	**33.00**
251421	40	1670	110-125	90	1000	47	**34.00**
251419	25-30	1725	105-115	70	1050	44	**34.00**
251417	D.C.	1725	100-115	63	1050	44	**33.00**
293367	D.C.	935	24-32	32	1150	33	....

16 Inch Fans—Vertical Delivery

Mfrs. No.	Freq. Cls.	Cu.Ft. Air Per Min.	Volts	Watts at High Speed *	Av'g. RPM *	Wt. Lb. Boxed	Price Each
270799	60	1500	100-120	90	1040	47	**33.00**
270798	D.C.	1530	100-120	62	1070	44	**33.00**

For 220 volt alternating current fans add **$2.00** and for direct current **$2.50** to prices given above.

*Watts, speed and air delivery may vary 10 per cent from figures given.

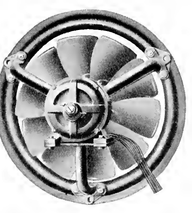
SPEED REGULATORS
For 110 Volt Exhaust Fans

Mfrs. No. Regulator	Mfrs. No. For Fan	Fan Speed	Additional Speeds with Regulator	Regulator Price Each
251428	**251407**	1150	925-675	**$5.00**
251430	**251409**	1050	800-500	**5.00**
251432	**251411**	1000	850-700	**5.00**
251434	**251413**	900	800-700	**5.00**
251436	**251415**	1050	850-680	**5.00**
251438	**251417**	1050	850-650	**5.00**
251440	**251419**	1050	850-650	**5.00**
251442	**251421**	1000	900-800	**5.00**
251444	**251423**	900	750-600	**5.00**
251446	**251425**	1000	850-650	**5.00**
251428	**270795**	1150	925-675	**5.00**
251436	**270796**	1050	850-680	**5.00**
251438	**270798**	1050	850-650	**5.00**
251446	**270799**	1050	850-650	**5.00**

Approximate net weight, 5 pounds; shipping, 8 pounds.

Speed regulators for 220 volt fans are same price as 110 volt speed regulators.

WESTINGHOUSE VENTILATING FANS



The fan wheel is made up of ten steel blades securely riveted to a large central disc. It is light in weight and perfectly balanced so that operation without vibration is assured. The ring is a substantial iron casting. Holes are provided for mounting bolts. The arms are bolted to the ring and to the motor and form a rigid support for the motor.

Westinghouse single phase or polyphase motors similar in construction to CA and CSA motors are furnished for alternating current circuits. Series wound motors similar in construction to CD motors are furnished for direct current circuits.

A simple snap or knife switch is the only starting device required. For direct current fans, a small, speed-regulating rheostat can be furnished which permits of six speeds from full speed to 50 per cent of full speed.

ALTERNATING CURRENT—Single Phase

Mfrs. No. 110 Volt	Mfrs. No. 220 Volt	No. Fan	Wheel Diam.	H.P.	Approx. RPM	Cap. in Cu Ft. Per Min.	Shpg. Wt. Lb.
187345	**187346**	3½	18¾	.085	870	1860	130
187347	**187348**	4	21¼	.11	880	2770	160
187349	**187350**	5	26¾	.17	700	4420	215
187351	**187352**	6	32	.26	575	6530	285
246318	**246319**	7	37¼	.42	565	9830	365
		Two Phase					
224904	**224905**	3½	18¾	.085	870	1860	130
224908	**224909**	4	21¼	.11	880	2770	160
224912	**224913**	5	26¾	.17	700	4420	215
224916	**224917**	6	32	.26	575	6530	285
246320	**246321**	7	37¼	.42	565	9830	365
		Three Phase					
224906	**224907**	3½	18¾	.085	870	1860	130
224910	**224911**	4	21¼	.11	880	2770	160
224914	**224915**	5	26¾	.17	700	4420	215
224918	**224919**	6	32	.26	575	6530	285
246323	**246324**	7	37¼	.42	565	9830	365

SERIES WOUND DIRECT CURRENT FANS
115 Volt

Mfrs. No. Outfit Without Rheostat	No. Fan	Wheel Diam.	H.P.	Approx. RPM	Cap. in Cu.Ft. Per Min.	Shpg. Wt. Lb.	Mfrs. No. Rheostat
187353	3½	18¾	.085	870	1860	130	**188588**
187355	4	21¼	.11	880	2770	160	**188588**
187357	5	26¾	.17	700	4420	215	**188590**
187359	6	32	.26	575	6530	325	**188590**
246327	7	37¼	.42	565	9830	365	**252512**
			230 Volt				
187354	3½	18¾	.085	870	1860	130	**188589**
187356	4	21¼	.11	880	2770	160	**188589**
187358	5	26¾	.17	700	4420	215	**188591**
187360	6	32	.26	575	6530	325	**188591**
244328	7	37¼	.42	565	9830	365	**252513**

Outfits complete consist of fan wheel, ring and motor with attaching arms.

AMERICAN BLOWER VENTILATING FANS

VENTURA TYPE

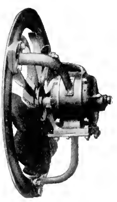
Constructional Features

FRAME—A strong cast iron frame, well proportioned to the complete unit design, and neatly and durably finished.

WHEEL—The blades, ten in number, are unusually broad, with the peculiar Ventura dip. The propulsive force is much greater with the ten-blade wheel construction, and the wide disc at center prevents any back flow at that point. The wheel is light in weight, ruggedly constructed and perfectly balanced.

MOTORS—Operate practically noiselessly and are totally enclosed to prevent dust getting into the working parts. These motors are produced by the best known manufacturers who are specialists in their line with a world-wide reputation as producers of electrical apparatus.

TESTING—Each fan is given a careful running test with a rigid inspection following, before shipment.



These Fans have been developed in recognition of the increasing demand for a curved blade disc fan of an improved design and construction over the earlier types. The admirable appearance and high mechanical efficiency of these motor driven fans insure the most satisfactory ventilating device obtainable.

The various arrangements of Fans render them applicable to almost any ventilating duty within their capacity. Where rooms are large, four to six and ofttimes more fans are employed to assure proper circulation of air.

Their operation cost is slight. They are quickly installed and require very little space.

DIRECT CURRENT—110 OR 220 VOLTS

Direct Connected Fans With Westinghouse Motors

Size	Wheel Diam. In.	Approx. R.P.M.	Cap. Cu Ft. Per Min.	Watt Input Per Hr.	Shpg. Wt. Lbs.	*Price Each
3	16	1150	1600	110	110	**$71.00**
3½	18¾	870	1860	120	130	**88.00**
4	21¼	880	3020	145	160	**159.00**
5	26¾	700	4640	210	215	**174.00**
6	32	575	6530	325	325	**242.00**
7	37¼	565	10200	495	350	**297.00**
8	42¾	425	11320	750	525	**405.00**
9	48	425	15750	1000	650	**507.00**

*Price includes speed regulator giving 50% reduction in speed.

ALTERNATING CURRENT

60 Cycle—Single Phase 110-220 Volt

Size	Wheel Diam. In.	Approx. R.P.M.	Cap. Cu Ft. Per Min.	Watt Input Per Hr.	Shpg. Wt. Lbs.	Price Each
3	16	1150	1600	150	110	**$79.00**
3½	18¾	870	1860	160	130	**137.00**
4	21¼	880	3020	170	160	**170.00**
5	26¾	700	4640	260	215	**225.00**
6	32	575	6530	375	290	**324.00**
7	37¼	565	10200	560	350	**429.00**

60 Cycle—Two and Three Phase 110-220 Volt

Size	Wheel Diam. In.	Approx. R.P.M.	Cap. Cu.Ft. Per Min.	Watt Input Per Hr.	Shpg. Wt. Lbs.	Price Each
3½	18¾	870	1860	150	130	**$154.00**
4	21¼	880	3020	160	160	**178.00**
5	26¾	700	4640	225	215	**222.00**
6	32	575	6530	310	325	**275.00**
7	37¼	565	10200	510	350	**338.00**
8	42¾	425	11320	675	560	**414.00**
9	48	425	15750	850	775	**500.00**

Furnished with horiz^ntal shaft motors only.
Specify voltage and phase when ordering.
Do not use above outfits for installation with duct systems.

DIRECT CURRENT—110 OR 220 VOLTS

Direct Connected Fans With High Speed Westinghouse Motors

Size	Wheel Diam. In.	Approx. R.P.M.	Cap. Cu.Ft. Per Min.	Watt Input Per Hr.	Shpg. Wt. Lbs.	*Price Each
3½	18¾	1150	2530	276	130	**$121.00**
4	21¼	1150	3700	405	160	**182.00**
5	26¾	870	5560	440	215	**209.00**
6	32	680	7500	557	341	**275.00**
7	37¼	680	11800	885	420	**374.00**

*Price on direct current units includes speed regulator giving 50% reduction in speed.

ALTERNATING CURRENT

60 Cycle—Single Phase 110-220 Volt

Size	Wheel Diam. In.	Approx. R.P.M.	Cap. Cu.Ft. Per Min.	Watt Input Per Hr.	Shpg. Wt. Lbs.	Price Each
3½	18¾	1150	2530	265	130	**$160.00**
4	21¼	1150	3700	450	160	**200.00**
5	26¾	870	5560	510	215	**253.00**

60 Cycle—Two and Three Phase 110-220 Volt

Size	Wheel Diam. In.	Approx. R.P.M.	Cap. Cu.Ft. Per Min.	Watt Input Per Hr.	Shpg. Wt. Lbs.	Price Each
3½	18¾	1150	2530	210	130	**$165.00**
4	21¼	1150	3700	370	160	**198.00**
5	26¾	870	5560	410	215	**242.00**
6	32	680	7500	560	325	**303.00**
7	37¼	680	11800	960	350	**363.00**

Furnished with horizontal shaft motors only.

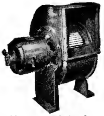
Specify voltage and phase when ordering.

Do not use above outfits for installation with duct systems.

The outfits listed above handle more air than standard speed fans. They are intended for use in locations where quiet operation is not necessary.

AMERICAN BLOWER VENTILATING UNITS

SIROCCO TYPE



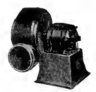
Sizes No. 2 to 4

Adaptable to ventilating rooms which are not direct connected with the out-of-doors, and where ducts are required in the ventilating system.

Care should be used in selecting and installing Ventilating Units. The first question is, is more fresh air needed, or is there at present foul air to be removed? This will decide whether to operate the unit blowing or exhausting.

Do not fail to figure the required size large enough. A fan too small to do the work is a waste of money and a continual disappointment.

For crowded rooms at least 30 cubic feet of air per person per minute should be allowed.



Sizes No. 00 to 1½

DIRECT CURRENT

Fan No.	Approx. R. P. M.	Motor H. P.	Wheel Diam., In.	Size Outlet Inches	Size Inlet Inches	C. F. M. Free Del.	¼" S. P.	½" S. P.	¾" S. P.	Shipping Wt., Lbs.	*Price Each	‡Price Each
00	2200	1/70	3	2½	3⅛	55	40	....	....	15	**$66.00**	....
0	1700	1/20	4½	3⅝	4⅝	150	115	....	....	45	**77.00**	....
1	1120	1/16	6	4⅞	6½	225	160	....	....	75	**88.00**	....
1	1750	⅛	6	4⅞	6½	340	320	270	176	95	**110.00**	....
1¼	1120	⅛	7½	6	7⅞	450	380	210	....	110	**122.00**	....
1¼	1750	⅓	7½	6	7⅞	715	645	602	520	130	**178.00**	....
1½	850	1/10	9	7⅛	9½	600	460	....	....	150	**154.00**	....
1½	1120	⅙	9	7⅛	9½	800	700	560	....	160	**154.00**	....
1½	1750	¾	9	7⅛	9½	1210	1130	1080	1000	195	**220.00**	....
2	850	½	12	12⅝x10⅛	12½	1800	1600	1300	....	325	**330.00**	**$27.00**
2	1120	1½	12	12⅝x10⅛	12½	2400	2230	2000	1850	360	**385.00**	**42.00**
2½	690	¾	15	15½x12⅜	15¼	2800	2550	2100	1600	460	**408.00**	**31.00**
2½	850	1½	15	15½x12⅜	15¼	3500	3300	3000	2600	460	**462.00**	**42.00**
3	690	2½	18	18½x14¾	18½	4900	4300	4100	3600	680	**672.00**	**46.00**
3½	565	2½	21	21½x17⅛	21¼	6400	5900	5200	4400	925	**738.00**	**46.00**
4	430	2½	24	24¾x19	26½	9300	8500	7400	5900	1250	**935.00**	**55.00**

ALTERNATING CURRENT—60 CYCLE

Single Phase

Fan. No.	Approx. R. P. M.	Motor H. P.	Wheel Diam. In.	Size Outlet Inches	Size Inlet Inches	C. F. M. Free Del.	¼" S. P.	½" S. P.	¾" S. P.	Shipping Wt., Lbs.	Price Each
00	2200	1/70	3	2½	3⅛	55	40	....	....	15	**$66.00**
0	1700	1/20	4½	3⅝	4⅝	150	115	....	....	45	**77.00**
1	1120	1/16	6	4⅞	6½	225	160	....	....	75	**88.00**
1	1750	⅛	6	4⅞	6½	340	320	270	176	95	**110.00**
1¼	1120	⅛	7½	6	7⅞	450	380	210	....	110	**122.00**
1¼	1750	⅓	7½	6	7⅞	715	645	602	520	130	**178.00**
1½	850	1/10	9	7⅛	9½	600	460	....	....	150	**154.00**
1½	1120	⅙	9	7⅛	9½	800	700	560	....	160	**154.00**
1½	1750	¾	9	7⅛	9½	1210	1130	1080	1000	195	**220.00**
2	850	½	12	12⅝x10⅛	12½	1800	1600	1300	1000	325	**363.00**
2	1120	1½	12	12⅝x10⅛	12½	2400	2230	2000	1850	360	**462.00**
2½	690	¾	15	15½x12⅜	15¼	2800	2550	2100	1600	460	**518.00**
2½	850	1½	15	15½x12⅜	15¼	3500	3300	3000	2600	460	**595.00**
3	690	2	18	18½x14¾	18½	4900	4300	4100	3600	680	**852.00**

Polyphase

Fan. No.	Approx. R. P. M.	Motor H. P.	Wheel Diam. In.	Size Ontlet Inches	Size Inlet Inches	C. F. M. FreeDel.	¼"S.P.	½"S.P.	¾"S.P.	Shpg. Wt.Lbs.	Price Each Constant Speed	Var. Speed with Cont.
2	850	½	12	12⅝x10⅛	12½	1800	1600	1300	....	325	**$308.00**	**$524.00**
2	1120	1½	12	12⅝x10⅛	12½	2400	2230	2000	1850	360	**330.00**	**562.00**
2½	690	¾	15	15½x12⅜	15¼	2800	2550	2100	1600	460	**374.00**	**605.00**
2½	850	1½	15	15½x12⅜	15¼	3500	3300	3000	2600	460	**396.00**	**660.00**
3	690	2½	18	18½x14¾	18½	4900	4300	4100	3600	680	**517.00**	**810.00**
3½	565	2½	21	21½x17⅛	21¼	6400	5900	5200	4400	925	**595.00**	**906.00**
4	430	2½	24	24¾x19	26½	9300	8500	7400	5900	1250	**814.00**	**1195.00**

*Price includes fan and motor with starter. Starters are not required or furnished with direct current outfits number 1½ and smaller. ‡Add for controller in place of starter. No. 00 is regularly supplied with a three-point speed regulator conveniently located in the fan base. Sizes Nos. 00 to 1¼ inclusive are furnished with lamp cord and plug for attachment to ordinary lamp socket.

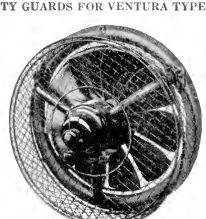
Standard units covered by the above prices are equipped with 110 or 220 volt direct current; 110 or 220 volt 60 cycle, single phase, alternating current; and 220 or 440 volt, 60 cycle, two or three phase, alternating current motors. Direct current and polyphase controllers listed give approximately 50% speed reduction and are of the standard open type. Prices on units equipped with 25, 30 or 40 cycle, alternating current motors furnished on application. Motors for 32 volt, direct current, can be furnished. For prices, add 20% to the prices given for 110 or 220 volt units. No. switches, enclosing boxes, fuse boxes or other electrical fittings are included with the outfits. No. 2 to No. 4 inclusive are furnished with conduit outlet boxes on the motor. No. 1½ and smaller are furnished with insulated binding posts.

Where screen enclosing covers are required for the direct current motors, sizes No. 2 and larger, they can be furnished on the commutator end only at the following additions to list price:

No. 2, **$20.00;** No. 2½, **$26.00;** No. 3 and 3½, **$29.00;** No. 4, **$31.00.**

AMERICAN BLOWER VENTILATING FANS

SAFETY GUARDS FOR VENTURA TYPE FANS



Guard in position on Ventilating Fan

Safety Guards should be used on all installations where the fans are within reach of occupants of the room or are in positions where foreign materials might be thrust into the running fan wheel.

These Safety Guards are constructed from heavy screen formed around a strong supporting frame. They do not reduce the volume of air handled by the fan and are quickly and easily installed.

Specify make of motor on fan when ordering guards.

Mfrs. No. Fan and Guard	Shipping Wt. Lbs.	Price Each	Mfrs. No. Fan and Guard	Shipping Wt. Lbs.	Price Each
2½	5	**$18.00**	6	25	**$30.00**
3	7	**21.00**	7	35	**33.00**
3½	10	**21.00**	8	45	**38.00**
4	14	**24.00**	9	60	**40.00**
5	18	**27.00**			

SHUTTER FOR VENTURA TYPE FANS

Automatic Shutters are used in connection with disc type fans as a protection to fan when not running, and to keep out the wind, rain, snow and cold.

Shutters are constructed of rolled aluminum leaves attached to steel rods supported in a frame.

The force of the air when fan is running holds the shutter open. When fan is shut off, shutter closes automatically by gravity.

Fan Number	Overall Dimen. In.	Shpg. Wt. Lb.	Price Each
2½	17x17	6	**$12.00**
3	20x20	15	**17.00**
3½	23x23	30	**22.00**
4	26x26	60	**27.00**
5	31x31	78	**31.00**
6	37x37	88	**39.00**
7	42x42	100	**46.00**
8	47x47	120	**53.00**
9	53x53	130	**72.00**

AMERICAN BLOWER VENTILATING FANS

REVERSIBLE VENTURA FAN
For Household Service and Small Offices

May be used either with or without adjustable frame. Each fan is equipped regularly with reversing switch and 10 feet of cord for attaching to ordinary lamp socket or wall receptacle. Prices f. o. b. factory. When fans are to be operated on 25, 30, 40 or 50 cycle alternating current special resistance plugs are furnished, making a standard 60 cycle outfit suitable. Plugs are **$5.00** each. Specify cycles when ordering plugs.

Diam. of Wheel Inches	Diam. of Opening Req. In.	Cap. Cu. Ft. Per Min.	Approx. Shpg. Wt. Lb.	Price Each
12½	15	600	60	**$72.00**

ADJUSTABLE SUPPORTING FRAMES

Extended to Maximum Width Closed to Minimum Width

Supporting frames are made in two sizes to fit windows 24 to 34 inches wide, and 32 to 50 inches wide. Necessary attaching screws, bolts and window handles are included with frames.

Mfrs. No.	For Windows Width, Inches	Price Each
24-34	24 to 34	**$10.00**
32-50	32 to 50	**10.00**

AUTOVENT LOUVRES

Made in sizes corresponding to various sizes of fans. Especially designed to prevent back drafts when fan is not operating. The vertical semi-circular vanes connected in series, instantly close when fan is turned off. All stock sizes, galvanized metal.

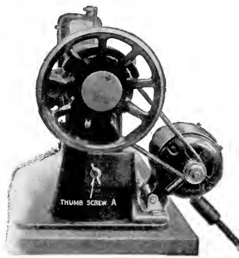
Size Inches	Shpg. Wt. Lb.	Price Each	Size Inches	Shpg. Wt. Lb.	Price Each
12	20	**$10.00**	36	95	**$44.00**
16	27	**14.00**	42	110	**52.00**
18	38	**21.00**	48	130	**64.00**
20	48	**23.00**	54	160	**78.00**
24	65	**28.00**	60	205	**104.00**
30	80	**36.00**	72	300	**160.00**

Prices covering special louvres equipped with vanes of copper or other acid-resistance metals on application.

WESTINGHOUSE SEW MOTOR

UNIVERSAL SERIES-WOUND TYPE MOTOR

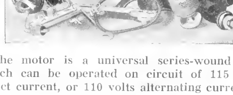
115 Volt D. C. or 110 Volt A. C.



All general makes of machines, new and old, except a few obsolete models, can be readily equipped with this motor and operated at a cost of only a fraction of a cent per hour for electric current. The complete outfit weighs less than 6 pounds, and employs many exclusive features of design. The drive is by means of a belt. A belt is supplied with the outfit and is used both for driving the sewing machine and for winding the bobbin. The motor is so mounted that it can be swung into a position so that the sewing machine can be closed.

Each outfit as furnished consists of a motor, motor mounting, controller, and cord and plug. The outfit usually sold will be No. 249779-A which has a motor mounting suitable for all general makes of family sewing machines of the drop head or stationary head type. The motor mounting for this style outfit consists of a flat "L" shaped steel base plate..

For the drop head Singer sewing machine manufactured since the first of 1914, No. 252400-A is furnished. This outfit has a special mounting which allows the sew-motor to drop with the head of the machine. For Singer sewing machines manufactured before 1914 outfits No. 249779-A should be supplied. However, on this particular type of machine the head cannot be dropped with the motor attached. To close this type of machine the motor and mounting is removed in one piece by simply taking off one of the thumb screws.

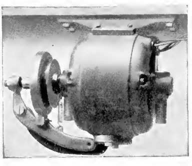


The motor is a universal series-wound type which can be operated on circuit of 115 volts direct current, or 110 volts alternating current of any frequency up to 70 cycles.

WESTINGHOUSE FACTORY SEWING MACHINE MOTOR

ALTERNATING CURRENT AND DIRECT CURRENT

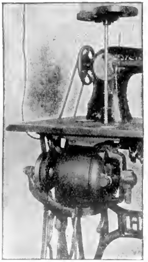
¼ H. P.—60 Cycles—1700 R. P. M.



The factory sewing machine motor is designed for heavy sewing service such as is encountered in clothing shops, department stores, automobile repair shops, awning and sail factories. It can be applied to any make of sewing machine and its use converts slow, tedious work into an easy, fast operation.

The motor is furnished standard for inverted mounting and is fitted with a support for fastening to the under side of the sewing-machine table.

The outfit is composed of a motor having a clutch mounted on one end of the shaft, an adjustable link or rod for connecting the treadle of the machine to the brake lever, and an angle-iron support on which are mounted a detachable plug and a snap switch. The motor is mounted under the sewing machine table, at the back, and is secured by means of four bolts. The treadle is disconnected from the wheel and the belt connecting the two wheels is removed. A belt is run from the motor pulley to the small hand wheel of the machine and the treadle is then connected to the brake arm on the motor by means of the connecting rod.



The motor is started by means of the snap switch and runs continuously, the machine being started and stopped by the operation of the treadle. A slight pressure on the treadle causes the brake lever to act on the clutch disc, causing it to engage the pulley. At the same time the brake on the pulley is released and the motor operates the machine.

Speed variation is obtained by varying the pressure applied to the treadle. When the pressure on the treadle is removed, a spring causes the brake lever to return to its original position, opening the clutch and applying the brake, causing the machine to stop instantly.

Alternating-Current—Single Phase—60-Cycle

Mfrs. No	H.P.	Full Load R.P.M.	Frame No.	Volts	Ship. Wt. Lb
230093	¼	1725	643	110	40
230094	¼	1725	643	220	40

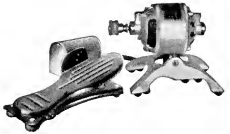
Direct-Current—Compound-Wound

Mfrs. No	H.P.	Full Load R.P.M.	Frame No.	Volts	Ship. Wt. Lb
230095	¼	1725	623	115	42
230096	¼	1725	623	230	42

Numbers cover motor complete with clutch, brake, control rod, and snap switch.

HAMILTON BEACH SEWING MOTORS

HOME—JACK RABBIT TYPE



Fits any sewing machine except an automatic, converting it into an electrically self-operated labor-saver. Has universal air cooled motor, with polished steel case, grooved cork driving pulley and large bearings fitted with wick feed oil cups. Operates on any lighting circuit of 110 volts, direct or alternating current, 25 to 60 cycles. Direction of rotation changed by reversing brushes.

Complete with insulated cord, attaching plug and separable connector.

Capacity of motor equipped machine, 800 stitches per minute; length motor, 5½ inches; diameter, 3⅛ inches; size of base, 5⅝x3¾ inches.

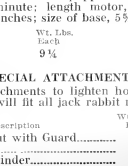
Mfrs. No.	Wt. Lbs. Each	Price Each
JR	9¼	$18.50

SPECIAL ATTACHMENTS

Various attachments to lighten home labor are listed below; will fit all jack rabbit motors.

Description	Wt. Lbs. Each	Price Each
Fan Attachment with Guard	1½	$3.00
Cake Mixer	3	5.00
Buffer and Grinder	½	1.50

H-B—BRACKET TYPES



Jack rabbit motors attached to universal or special hinged brackets, which are permanently attached to machine. Motor swings under the machine head so that it can be closed in the ordinary way.

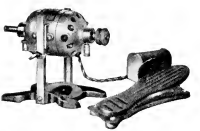
When ordering this type of motor, name and style of sewing machine should be given.

Mfrs. No.	Type Bracket	Wt. Lbs. Each	Price Each
BT	Bracket	6	$19.25
UT	Gooseneck—Fits all makes	8	19.25
CT	Chain Stitch—Automatic	8	21.00

Note:—When orders do not specify voltage, appliances operating on 110-120 volts, alternating current, 25 to 60 cycles or direct current 110-120 volts will be shipped. Other voltages **$1.50** for special winding.

HAMILTON BEACH SEWING MOTORS

H-B—TAILOR TYPES



Same type motor, friction drive and foot control as Home type but with more powerful motor and fitted with heavy adjustable stand. Rheostat windings entirely enclosed in cast iron base to prevent admission of cotton threads, dust, etc. Motor is reversible, shaft extension outside of nickeled steel; motor casing is equipped with friction attachment for winding bobbins.

Motor wound for 115 volts, alternating or direct current, 25 to 60 cycles. Diameter of motor, 3⅛ inches; length, 5½ inches; length of shaft, 7½ inches; size of pulley, 1½ inches; uprights, 6 inches high; pulley adjustment, 3 inches up and down.

Mfrs. No.	Wt. Lbs Each	Price Each
TT	11¾	$28.50

HAMILTON BEACH JEWELERS' LATHE MOTOR

NO. 2—ONE-TWENTIETH HORSEPOWER MOTOR

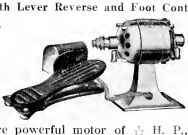
With Lever Reverse and Foot Control

A very popular model. Its speed is regulated by a foot pedal, leaving the hands free. Direction of rotation instantly reversed by raising or lowering the lever. 1/20 horsepower, 11,000 R.P.M., 5,500 under load. Can be used on either alternating or direct current.

Mfrs. No.	Wt. Lbs. Each	Price Each
2	8	$20.00

NO. 3—ONE-TWELFTH HORSEPOWER MOTOR

With Lever Reverse and Foot Control



A more powerful motor of 1/12 H. P., for the jeweler who does heavier lathe work. Its speed and direction control is the same as No. 2, and it also operates on any 110-120 current, 25-60 cycles.

Mfrs. No.	Wt. Lbs. Each	Price Each
3	10	$27.50

HAMILTON BEACH ELECTRIC VIBRATORS

Made in four different styles. Represent the highest point of mechanical and electrical perfection. Give both the rubbing and pulsating stroke so necessary to an efficient vibrator. All are light weight, well balanced instruments with powerful, rugged motors, well equipped with lubricators and fully protected. Have convenient ebonized hollow handle through which connecting cord passes to motor. Each outfit consists of a vibrator with cord and attaching plug, car of motor oil, 300 page volume on subject of vibratory massage and six applicators of the following numbers.

No. 1—Flat Hard Rubber Disc for Rubbing and Kneading Body Muscles.

No. 2—Bell Shaped, Soft Rubber; for Face, Neck, Arms and Bust.

No. 3—Velvet, Rubber Sponge for Face, Nose, Throat, and Eye Treatments.

No. 4—Round, Hard Rubber, the most powerful Applicator for Vigorous Treatment.

No. 6—Round, Soft Rubber Disc with Tooth Projections for Scalp.

No. 7—Similar to No. 6 but softer and with less prongs for Skin Treatment.

All packed in satin lined black leatherette carrying cases, except type C case which is plush lined.

TYPE A

Aluminum case, speed regulating switch on motor. Operates on standard 110-120 volt circuit, direct current. Also made for alternating current, 110 volts, 25 to 60 cycles. Light weight; for family use.

No. A—Weight Each 5 Lbs. Price Each..... **$19.50**

TYPE C

Heavier construction with more powerful motor than home types. Widely used in hospitals, sanitariums and Turkish baths. Speed regulating switch on motor. Aluminum motor case; made for 110-120 volts direct current, also for alternating current, 110-120 volts, 25 to 60 cycles.

No. C—Weight Each, 6¼ Lbs. Price Each **$28.50**

HAMILTON BEACH ELECTRIC VIBRATORS

TYPE D—UNIVERSAL

Light weight, low-priced instrument for family use. Professional hair dressers, masseurs, etc. Has no speed regulator but fitted with start and stop push button in handle. Has universal motor operating on both direct and alternating currents, 110-120 volts, 25 to 60 cycles Nickel plated die-casted case. Furnished with attaching cord and plug, six applicators, can of motor oil and 300 page volume on vibratory massage.

Mfrs. No. **D.** Price Each **$16.50**

TYPE F

Light weight, efficient; for home, barber shop, etc., nickel plated die-casted case. Equipped with motor speed regulator, made for 110-120 volts alternating current, 25 to 60 cycles and for 110-120 volts direct current.

Mfrs. No. F. Price Each..... **$18.50**

Note:—Vibrators regularly furnished for 110-120 volts A. C. or D. C., furnished when specified.

APPLICATORS

Numbers 1, 2, 3, 4, 6 and 7 are included with each Hamiltion Beach vibrator. The others are furnished at the prices shown.

Mfrs. No.		Price Each
8	Bristle Brush	$1.00
9	Soft Rbr. Rectal Applicator	1.50
10	Soft Rubber, Bell Shaped, Similar to No. 2, but larger and flatter	.50

HAMILTON BEACH DRINK MIXERS

Has new type commutator, tested to 1100 volts, 1 H. P. type, mica insulation, not fibre. Motor, 13,000 r.p.m. Armature electrically and dynamically balanced. Full automatic switch. Base is crystal white porcelain on fine metal body. Stainless, easily cleaned. Has rubber feet. Full triple nickel finish, double buffed and gloss polished.

Mfrs. No. 2. Price each....**$18.75**

Silver plate, **$3.75** additional.

No exchange offer on No. 2.

A one-hand absolutely automatic model. Speed of mixer is enhanced by new patented airplane-design agitator. Mixing action is so magnified that a single malted milk takes only ten seconds, a double twenty seconds or less. Container placed in position starts the motor and flashes the electric light. Removing the drink automatically stops the motor and turns off light. Full triple nickel finish. Complete with double-drink container.

Mfrs. No. 3. Price each.....**$28.50**

Silver plate, **$4.00** additional.

Allowance for return of old mixer, any make, **$8.50.**

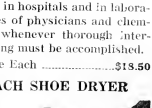
AIR-O-MIX WHIP-ALL

For beating eggs, whipping cream, making mayonnaise, batters, syrups, dressing, pie fillings, custards, sauces, egg, malted milk and other drinks. Is particularly adapted to special order work in restaurants and hotels. Also largely used in hospitals and in laboratories of physicians and chemists whenever thorough intermixing must be accomplished.

Price Each **$18.50**

HAMILTON BEACH SHOE DRYER

CYCLONE
Hot and Cold Air Blasts



A universal support is clamped to casing of fan and fits any shoe stand. Consists of a powerful light weight universal motor that operates on either alternating or direct current, 105 to 120 volts, 25 to 60 cycles; polished aluminum case encloses fan. A heating coil, readily switched on or off, is located in the nozzle. Black ebonized hardwood handle to which is attached the connecting cord with its attaching plug.

Mfrs. No.	Length In.	Weight Lbs.	Price Each
SD	11⅝	5½	**$24.50**

HAMILTON BEACH HAIR DRYERS

STANDARD TYPE
Hot and Cold Air Blasts

Dries the heaviest head of hair in a few minutes. The volume of both hot and cold air is just sufficient for pleasant results. Consists of a universal motor operating on either alternating or direct current, 105 to 120 volts, 25 to 60 cycles; a vane type fan and a hot wire grid controlled by handle switch for either hot or cold blasts; all enclosed in a polished aluminum case with ebonized handle.

Mfrs. No.	Length In.	Width In.	Weight Lbs.	Price Each
2	11⅝	7½	5	**$22.50**

JUNIOR STAND-TYPE

Hot and Cold Air Blasts

Can be held in the hand or set in the stand at any desired angle, leaving both hands free for scalp massage while hair is drying. The stand may be quickly detached.

Motor designed to operate on either direct or alternating currents of from 105 to 120 volts, 60 cycles. Special windings may be had at a slight advance in price.

Mfrs. No.	Description	Price Each
3	Junior Stand-Type	**$18.50**

HAMILTON BEACH ELECTRIC GRINDERS

PORTABLE—TOOL POST GRINDER

High speed hand and tool post grinder. An absolute necessity for the accurate grinding of dies, reamers, cutters, etc. Perfectly balanced, with all vibration eliminated. It is easily adjusted through a universal joint. Has air cooled, universal motor, operating on any light circuit of 104-120 volts, alternating or direct, 25 to 60 cycles. Armature shaft is ground on centers to a mirror finish, assuring long life motor. Case made of highly polished aluminum. Nickel babbit bearings with dust proof bearing caps. Equipped with tested and trued emery wheel, tool post holder; C-H feed through switch; complete with cord and plug.

Mfrs. No.	Horse Power	Shipping Wt. Lbs.	Price Each
TPG	⅓	7½	**$25.00**

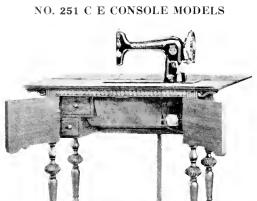
Attachments

For Extra Arbor, plain.....**$1.50**
For Extra Arbor, taper.....**1.25**
Emery Pencil Chuck.....**1.50**

Note:—When orders do not specify voltage, appliances operating on 110-120 volts, alternating current, 25 to 60 cycles or direct current 110-120 volts will be shipped. Other voltages **$1.50** for special winding.

FREE-WESTINGHOUSE ELECTRIC SEWING MACHINES

NO. 251 C E CONSOLE MODELS



Full size Free head, with long bobbin rotary movement. Toggle link take up, short needle, rotary disc tensions, revolving sleeve on spool pin. Positive 4 motion feed—non-tangling lock stitch.

Westinghouse built-in-the-head motor, voltage 110 or 220, either alternating or direct current. Also special 32 volt motors for farm circuits.

Power is applied by a slight side pressure of the knee against the controller, which is instantly adaptable to any desired position, folds from sight when not in use.

Beautifully designed console table, furnished in mahogany and walnut. The walnut is furnished in either two-tone or varnish finish. Furnished with complete set of Greist attachments, including 5 stitch ruffler, and all accessories. Filled oil can, extra needle and bobbins also supplied.

Mfrs. No.	Finish	Price Each
251 C E Model	Walnut	**$152.50**
251 C E Model	Mahogany	**157.50**

NO. 05 C. E. PORTABLE MODELS

Full size Free head, with long bobbin rotary movement. Toggle link take up, short needle, rotary disc tension, revolving sleeve on spool pin. Positive 4 motion feed—non-tangling stitch.

Westinghouse built-in-the-head motor, voltage 110 or 220, either alternating or direct current. Also special 32 volt motors for farm circuits.

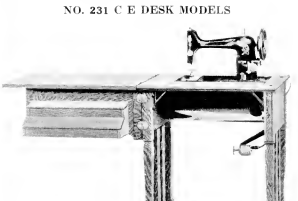
Power is applied by means of foot control which is stored at the right of hand wheel; cord and plugs placed in base of machine beneath the head.

Walnut carrying case. May be stored in closet or trunk when not in use. Complete with set of Greist attachments, including 5 stitch ruffler and all accessories.

Mfrs. No.	Finish	Price Each
05 C E Model	Walnut Only	**$79.50**

FREE-WESTINGHOUSE ELECTRIC SEWING MACHINES

NO. 231 C E DESK MODELS



Full size Free head, with long bobbin rotary movement, toggle link take up, short needle, rotary disc tensions, revolving sleeve on spool pin. Positive 4 motion feed—a strictly non-tangling lock stitch sewing machine.

Westinghouse built-in-the-head motor, voltage 110 or 220, either alternating or direct current. Also special 32 volt motors for farm circuits.

Stitching capacity is 75,000 stitches at a cost of less than 1 cent. From 100 to 800 stitches per minute.

Power is applied by a slight side pressure of the knee against the controller, which is instantly adaptable to any desired position, and folds from sight when not in use.

Beautifully designed model, in quarter sawed oak finished in both fumed and golden oak, walnut and mahogany.

Furnished with complete set of Greist attachments including 5 stitch ruffler and all accessories. Filled oil can, extra needles and bobbins are also furnished.

Guarantee

All models listed on this page. Motor guaranteed for one year, sewing mechanism for five years. Needles, shuttles, bobbins and attachments not guaranteed.

Mfrs. No.	Finish	Price Each
231 C E Model	Oak	**$116.50**
231 C E Model	Walnut	**121.50**
231 C E Model	Mahogany	**124.50**

USEFUL INFORMATION

DISCOUNT TABLE

Given discount reduced to its decimal equivalent and also the remainder after subtracting the the decimal equivalent from unity 1.

Regardless of the rotation of discounts the net results are the same. Example: 50-10-20% is the same as 10-20-50%.

Discount	Decimal Equivalent	1.—Decimal Equivalent or the Multiplier	Discount	Decimal Equivalent	1.—Decimal Equivalent or the Multiplier	Discount	Decimal Equivalent	1.—Decimal Equivalent or the Multiplier
2½	.025	.975	40-10-6	.493	.507	50-15-10-5	.637	.363
52½	.074	.926	40-10-7½	.501	.499	50-15-10-5-5	.655	.345
5-5	.098	.902	40-10-7½-5	.525	.475	50-16⅔	.583	.417
10-2½	.123	.877	40-10-10	.514	.486	50-16⅔-5	.604	.396
10-5	.145	.855	40-10-10-5	.538	.462	50-20-5	.62	.38
10-5-2½	.167	.833	40-10-10-10	.563	.437	50-20-10	.64	.36
10-10	.19	.81	40-10-10-10-5	.584	.416	50-25	.625	.375
10-10-2½	.211	.789	40-10-12½	.528	.472	52½	.525	.475
10-10-5	.231	.769	40-10-16⅔	.55	.45	52½-10	.573	.427
10-10-5½	.2345	.7655	40-10-16⅔-5	.573	.427	52½-10-16⅔	.644	.356
10-10-7	.247	.753	40-12½	.475	.525	55-5	.573	.427
10-10-10	.271	.729	40-15	.49	.51	55-10	.595	.405
10-10-10-5	.308	.692	40-15-5	.515	.485	55-10-10	.636	.364
10-10-10-5-2½	.325	.675	40-16⅔	.50	.50	60-5	.62	.38
10-10-7-15	.359	.641	40-16⅔-5	.525	.475	60-5-5	.639	.361
10-10-10-10	.344	.656	42½	.425	.575	60-5-10	.658	.342
10-10-10-10-5	.377	.623	42½-10	.483	.517	60-10	.64	.36
10-10-10-10-10	.41	.59	42½-10-16⅔	.569	.431	60-10-5	.658	.342
12½	.125	.875	45-5	.478	.522	60-10-5-5	.675	.325
12½-2½	.147	.853	45-10	.505	.495	60-10-10	.676	.324
12½-5	.169	.831	45-10-5	.529	.471	60-10-10-5	.692	.308
12½-10	.213	.787	45-10-10	.555	.445	60-10-15-5	.71	.29
15-2½	.172	.828	45-10-10-5	.577	.423	60-15-5	.677	.323
15-5	.193	.807	45-10-10-10	.599	.401	60-20-5	.696	.304
15-10	.235	.765	45-10-10-10-5	.619	.381	60-20-15	.728	.272
15-10-5	.273	.727	45-10-12½	.567	.433	62½	.625	.375
15-10-10-5-5	.379	.621	45-10-16⅔	.588	.412	62½-5	.644	.356
16⅔	.1666	.8333	45-12½	.519	.481	62½-7	.651	.349
16⅔-5	.209	.791	45-15	.533	.467	62½-10	.663	.337
16⅔-5-2½	.229	.771	45-15-5	.556	.444	62½-10-5	.679	.321
16⅔-5-5	.248	.752	45-16⅔	.542	.458	62½-10-7	.687	.313
16⅔-10-2½	.269	.731	50-5	.525	.475	65-5	.668	.332
16⅔-10-5-2½	.306	.694	50-10	.55	.45	65-10	.685	.315
16⅔-10-5-5	.323	.677	50-10-5	.572	.428	66⅔	.6667	.3333
20-5	.24	.76	50-10-5-5	.594	.406	66⅔-5	.684	.316
20-10	.28	.72	50-10-10	.595	.405	66⅔-10	.701	.299
20-10-5	.316	.684	50-10-10-5	.615	.385	66⅔-10-5	.716	.284
25	.25	.75	50-10-10-5-5	.634	.366	67½	.675	.325
25-5	.288	.712	50-10-10-5-5-5	.653	.347	67½-10	.708	.292
25-10	.325	.675	50-10-10-7	.624	.376	70-5	.715	.285
25-10-5	.359	.641	50-10-10-7-15	.68	.32	70-10	.73	.27
30-5	.335	.665	50-10-10-10	.635	.365	70-10-5	.744	.256
30-10	.37	.63	50-10-10-10-5	.653	.347	70-10-10	.757	.243
30-10-5	.402	.598	50—4–10's	.672	.328	70-10-10-5	.769	.231
30-10-5-5	.432	.568	50—4–10's—5	.689	.311	70-10-10-10	.781	.219
30-10-5-5-5	.46	.54	50—5–10's	.705	.295	70-10-10-10-5	.792	.208
30-10-12½	.449	.551	50—5–10's—5	.72	.28	70—4–10's	.803	.197
30-10-12½-5	.477	.523	50—6–10's—	.735	.265	70—4–10's–5	.812	.188
30-12½	.388	.612	50—6–10's—5	.748	.252	70—5–10's	.822	.178
30-16⅔	.4167	.5833	50—6–10's-5-5	.76	.24	70—5–10's–5	.831	.169
30-16⅔-5	.446	.554	50—7–10's	.759	.241	70—6–10's	.84	.16
30-16⅔-10	.475	.525	50—7–10's—5	.772	.228	70—6–10's–5	.848	.152
30-16⅔-10-5	.502	.498	50—7–10's-5-5	.783	.217	80-5	.81	.19
32½	.325	.675	50—8–16's	.784	.216	80-10	.82	.18
32½-10	.393	.607	50-10-12½	.606	.394	80-10-5	.829	.171
32½-10-16⅔	.494	.506	50-10-15-5-5	.657	.343	80-10-10	.838	.162
33⅓	.3333	.6667	50-10-16⅔	.625	.375	80-10-10-5	.846	.154
33⅓-5	.367	.633	50-10-16⅔-5	.644	.356	85-5	.857	.143
33⅓-10	.401	.599	50-10-25	.663	.337	85-5-10-5-5	.883	.117
33⅓-10-5	.43	.57	50-10-25-5	.68	.32	85-10	.865	.135
35-5	.383	.617	50-10-25-10	.696	.304	87½	.875	.125
40-5	.43	.57	50-12½	.563	.437	87½-5	.882	.118
40-6	.436	.564	50-15	.575	.425	87½-5-10	.894	.106
40-10	.46	.54	50-15-5	.596	.404	87½-5-10-5	.899	.101
40-10-5	.487	.513	50-15-10	.618	.382	87½-5-10-5-5	.904	.096

USEFUL INFORMATION

MELTING POINT AND RELATIVE CONDUCTIVITY OF DIFFERENT METALS AND ALLOYS

Metals	Relative Conductivity	Melting Point° F.
Pure silver	100.0	1873
Pure copper	100.0	2550
Refined and crystallized copper	99.9	.....
Telegraphic silicious bronze	98.0	.....
Alloy of copper and silver (50%)	86.65	.....
Pure gold	78.0	2016
Silicide of copper, 4 % Si	75.0	.....
Silicide of copper, 12% Si	54.7	.....
Pure aluminum	54.2	1160
Tin with 12% of sodium	46.9	.....
Telephonic silicious bronze	35.0	.....
Copper with 10% of lead	30.0	.....
Pure zinc	29.9	773
Telephonic phosphor-bronze	29.0	.....
Silicious brass, 25% zinc	26.4	.....
Brass with 35% zinc	21.59	.....
Phosphor-tin	17.7	.....
Alloy of gold and silver (50%)	16.12	.....
Swedish iron	16.4	4000
Pure Banca Tin	15.5	442
Antimonial copper	12.7	.....
Aluminum bronze (10%)	12.6	.....
Siemens steel	12.0	.....
Pure platinum	10.6	4100
Copper with 10% of nickel	10.6	.....
Cadmium Amalgam (15%)	10.2	.....
Dronier mercurial bronze	10.14	.....
Arsenical copper (10%)	9.1	.....
Pure lead	8.88	630
Bronze with 20% tin	8.4	.....
Pure nickel	7.89	2800
Phosphor-bronze, 10% tin	6.5	.....
Phosphor-copper, 9% phos.	4.9	.....
Antimony	3.88	840

CURRENT REQUIRED TO FUSE WIRES, COPPER, GERMAN SILVER AND IRON

B. & S. Gauge	Copper, Amperes	German Silver, Amperes	Iron, Amperes
10	333.0	169.0	101.0
11	284.0	146.0	86.0
12	235.0	120.7	71.2
13	200.0	102.6	63.0
14	166.0	85.2	50.2
15	139.0	71.2	42.1
16	117.0	60.0	35.5
17	99.0	50.4	32.6
18	82.8	42.5	25.1
19	66.7	43.2	20.2
20	58.3	29.9	17.7
21	49.3	25.3	14.9
22	41.2	21.1	12.5
23	34.5	17.7	10.9
24	28.9	14.8	8.76
25	24.6	12.6	7.46
26	20.6	10.6	6.22
27	17.7	9.1	5.36
28	14.7	7.5	4.45
29	12.5	6.41	3.79
30	10.25	5.26	3.11
31	8.75	4.49	2.65
32	7.26	3.73	2.2
33	6.19	3.18	1.88
34	5.12	2.64	1.55
35	4.37	2.24	1.33
36	3.62	1.86	1.09
37	3.08	1.58	.93
38	2.55	1.31	.77
39	2.20	1.13	.67
40	1.86	.95	.56

COMPARISON OF CENTIGRADE AND FAHRENHEIT THERMOMETER SCALES

Cent.	Fahr.	Cent.	Fahr.	Cent.	Fahr.	Cent.	Fahr.
0	32.0	26	78.8	52	125.6	78	172.4
1	33.8	27	80.6	53	127.4	79	174.2
2	35.6	28	82.4	54	129.2	80	176.0
3	37.4	29	84.2	55	131.0	81	177.8
4	39.2	30	86.0	56	132.8	82	179.6
5	41.0	31	87.8	57	134.6	83	181.4
6	42.8	32	89.6	58	136.4	84	183.2
7	44.6	33	91.4	59	138.2	85	185.0
8	46.4	34	93.2	60	140.0	86	186.8
9	48.2	35	95.0	61	141.8	87	188.6
10	50.0	36	96.8	62	143.6	88	190.4
11	51.8	37	98.6	63	145.4	89	192.2
12	53.6	38	100.4	64	147.2	90	194.0
13	55.4	39	102.2	65	149.0	91	195.8
14	57.2	40	104.0	66	150.8	92	197.6
15	59.0	41	105.8	67	152.6	93	199.4
16	60.8	42	107.6	68	154.4	94	201.2
17	62.6	43	109.4	69	156.2	95	203.0
18	64.4	44	111.2	70	158.0	96	204.8
19	66.2	45	113.0	71	159.8	97	206.6
20	68.0	46	114.8	72	161.6	98	208.4
21	69.8	47	116.6	73	163.4	99	210.2
22	71.6	48	118.4	74	165.2	100	212.0
23	73.4	49	120.2	75	167.0	.....	.....
24	75.2	50	122.0	76	168.8	.....	.....
25	77.0	51	123.8	77	170.6	.....	.....

Temperature corrections based on room temperature of 25° C. If the temperature of room during a test differs from 25° C., corrections should be made by changing the observed rise of temperature by one-half per cent. for each degree C. Thus with a room temperature of 35° C. the observed rise has to be decreased by 5 per cent., and with a room temperature of 15° C. the observed rise has to be increased by 5 per cent.

CONDUCTIVITIES

Metal	At 0° C. At 32° F.	At 100° C. At 212° F.
Silver	100.0	71.56
Copper, Hard	99.95	70.27
Gold, Hard	77.96	55.90
Zinc, Pressed	29.02	20.67
Cadmium	23.72	16.77
Platinum, Soft	18.00	.....
Iron, Soft	16.80	.....
Tin	12.36	8.67
Lead	8.32	5.86
Arsenic	4.76	3.33
Antimony	4.62	3.26
Mercury, Pure	1.60	.....
Bismuth	1.245	0.878

The Conductance of a piece of any Metal 1 Cm. Long and 1 Sq. Cm. in Cross-Section is called its Specific Conductance or Conductivity. Conductance is the Reciprocal of Resistance, and Conductivity is the Reciprocal of Resistivity. If the Resistance of 2 Cm. of a piece of any Metal having a Uniform Cross Sectional Area of 1 Sq. Cm. is 4 ohms, Its Resistivity is 2 ohms, Conductance ¼ Mho (Ohm Spelled Backwards) and its Conductivity ½ Mho. Percentage Conductivity of a Substance is the Ratio of its Conductivity to that of the Standard at the same Temperature. The Conductivity of Matthiessen's Pure Copper at 0° C. is usually taken as the Standard, 100 per cent.

USEFUL INFORMATION

APPROXIMATE AMPERES PER TERMINAL PER WIRE for GENERATORS AND MOTORS, DIRECT AND ALTERNATING CURRENT

For Alternating Current Generators all figures are calculated on a unity power factor.

For Alternating Current Motors all figures are calculated on an average efficiency and power factor, such as are guaranteed by the manufacturers. No allowance has been made in these figures for starting conditions, all figures based on the actual full load running conditions. For proper fusing, etc., an allowance should be made.

H. P. of Motors	K. W. of Generators	110 Volts D. C.	110 Volts Single Phase	110 Volts Two Phase	110 Volts Three Phase	220 Volts D. C.	220 Volts Single Phase	220 Volts Two Phase	220 Volts Three Phase	440 Volts D. C.	440 Volts Single Phase	440 Volts Two Phase	440 Volts Three Phase
¼	.....	2.5	3.	1.5	1.7	1.3	1.5	.8	.8	.7	.8	.4	.5
½	.....	4.5	5.8	2.8	3.2	2.5	2.8	1.4	1.6	1.3	1.4	1.7	.8
1	.....	8.5	11.5	5.8	6.7	4.8	5.8	2.9	3.4	2.5	2.9	1.5	1.7
....	1	9.1	9.1	4.6	5.3	4.6	4.6	2.3	2.6	2.3	2.3	1.2	1.4
1½	.....	13.	17.	8.5	9.8	6.5	8.5	4.3	4.9	3.3	4.3	2.2	2.5
2	.....	16.4	19.4	9.7	11.4	8.2	9.7	4.8	5.7	4.1	4.9	2.5	3.
....	2	18.2	18.2	9.1	10.5	9.1	9.1	4.6	5.3	4.6	4.5	2.3	2.7
3	.....	24.2	30.4	15.2	17.6	12.1	15.2	7.6	8.8	6.1	7.6	3.8	4.5
....	3	27.3	27.3	14.	16.4	13.7	13.7	7.	8.2	6.8	6.8	3.4	4.1
5	.....	38.5	45.3	22.7	26.2	19.3	22.7	11.1	13.1	9.7	11.4	5.7	6.5
....	5	45.5	45.5	23.	26.3	22.8	27.7	11.5	13.2	11.4	11.4	5.7	6.6
7½	.....	56.5	66.	33.	38.2	28.3	33.	16.5	19.1	14.2	16.5	8.3	9.6
....	7½	68.2	68.2	34.	39.4	34.1	34.1	17.	19.7	17.	17.	8.5	9.9
10	.....	76.4	87.	48.8	50.5	38.2	44.1	21.8	25.3	19.1	22.	11.	11.2
....	10	90.1	90.1	45.	52.	45.	45.	23.	26.	22.5	22.5	11.3	13.
15	.....	115.	127.	63.5	73.3	57.3	63.5	31.8	36.7	28.7	31.8	15.9	18.4
....	15	137.	132.	78.3	78.7	84.3	84.3	42.2	39.4	42.2	42.2	21.1	19.7
20	.....	153.	174.	87.	102.	76.4	87.	43.5	51.	38.2	43.5	21.8	25.5
....	20	182.	182.	91.	106.	91.	91.	46.	53.	45.5	45.5	22.8	26.5
25	.....	192.	220.	110.	126.	96.	110.	55.	62.	48.	55.	27.5	31.
....	25	227.	227.	114.	132.	114.	113.	56.	65.7	57.	57.	28.4	32.9
30	.....	229.	261.	132.	151.	115.	130.	65.5	76.	58.	65.3	32.7	38.
....	30	273.	273.	137.	158.	137.	137.	68.3	79.	68.3	68.3	34.2	39.5
40	.....	306.	353.	177.	206.	153.	177.	88.3	103.	77.	88.3	44.2	51.5
....	40	370.	370.	185.	214.	185.	195.	93.	107.	93.	93.	46.5	54.
50	.....	373.	446.	223.	258.	187.	223.	112.	129.	93.5	112.	56.	64.5
....	50	455.	455.	228.	264.	227.	228.	111.3	132.	114.	114.	56.9	66.
75	.....	559.	660.	330.	382.	280.	330.	165.	191.	140.	115.	58.	96.
....	75	682.	682.	341.	395.	341.	341.	171.	198.	171.	171.	85.5	99.
00	.....	730.	850.	425.	492.	365.	425.	213.	246.	183.	213.	107.	123.
....	100	901.	901.	451.	520.	451.	450.	275.	260.	250.	250.	125.	130.
....	125	.....	.....	568.	655.	569.	568.	284.	328.	284.	284.	142.	164.
....	150	.....	.....	683.	789.	683.	683.	342.	395.	342.	342.	171.	198.
....	175	.....	.....	747.	920.	797.	797.	289.	460.	398.	399.	200.	230.
....	200	.....	.....	.....	.....	910.	910.	435.	526.	455.	455.	278.	263.
....	250	.....	.....	.....	.....	.....	.....	566.	668.	569.	566.	288.	334.
....	300	.....	.....	.....	.....	.....	.....	683.	790.	683.	683.	342.	395.

AMPERES PER HORSE POWER—DIRECT CURRENT

Following table shows number of amperes required per horse power when the percentage of efficiency of the motor is known:

Efficiency of Motor	75 Per Cent	80 Per Cent	85 Per Cent	90 Per Cent
At 110 Volts	9. Amp.	8.4 Amp.	7.9 Amp.	7.5 Amp.
At 200 Volts	4.5 Amp.	4.2 Amp.	3.95 Amp.	3.75 Amp.
At 500 Volts	1.98 Amp.	1.86 Amp.	1.75 Amp.	1.66 Amp.

I=Current in Amperes.
HP=Horse Power.
E=Voltage.
K=Efficiency of Motor.

$$I = \frac{HP \times 74600}{E \times K}$$

USEFUL INFORMATION

ALTERNATING CURRENT GENERATORS AND MOTORS

Alternating Current Generators are built in two types, the revolving field and revolving armature types. The names of the two sets of windings are rotor and stator. The revolving field type machine is mostly used, because of the field current only having to pass through the brushes and collector rings, the high tension wires all being stationary.

Alternating Current Generators are separately excited. That is, the field current is supplied from an auxiliary Direct Current Generator, known as an exciter.

Current supplied from an Alternating Current Generator alternates in direction at regular intervals, and from this characteristic is derived the terms "frequency" or "cycles," which always has a numerical value which defines the period of the alternations. The most generally adopted systems operate at either 60 cycles, 7200 alternations, or 25 cycles, 3000 alternations, while there are some Central Stations which supply either 40 cycle, 50 cycle, or 133 cycle current.

Alternating current is generated single, two or three phase, two and three phase systems being the most commonly used. They are better adapted for operating large motors. The three phase system has been universally adopted on account of economy in construction and operation. Single phase systems require two wires, two phase systems either three or four wires, and three phase systems three and four wires.

Alternating Current Motors are constructed single, two or three phase, and of many different types, and for all frequencies and synchronous speeds.

Single-Phase Motors: Single-phase motors are built in several different types, viz.: Repulsion, Repulsion Induction, and Induction Types, being used for constant or variable speed service.

Repulsion Induction motors are the most generally used of all single-phase motors and furnished for constant and variable speed.

Polyphase Induction Motors: Polyphase Induction Motors are built in two types, viz.: Squirrel Cage and Slip Ring or Wire Wound Rotor Types.

Squirrel Cage Rotor Type motor has nearly a constant speed (starting torque high), and is the type most generally used for driving machinery.

Slip-ring motor is adapted for speed variation ranging from 50% to 100%, and is also used for constant speed service. It has a high starting torque with a low starting current demand, which particularly adapts it for any service where a heavy starting current is objectionable.

Both the Squirrel Cage and Slip-ring type motors can be supplied for any frequency, voltage or speed.

Starting Torque: The starting torque of a constant speed motor is twice full load torque on full voltage. In general the torque varies as the square of the applied voltage. The reason for using a reduced electromotive force at starting is to reduce the sudden shock which may throw off belts or cause mechanical injury, and to reduce the starting current. When 50% voltage is applied to the motor, half full load torque is given.

Synchronous Motors are principally used for power factor correction and are also sometimes called "Synchronous Condensers," because they can be operated at a leading current to raise the power factor of an alternating current system. Synchronous motors for driving power are equipped with an extra starting winding, which will give from 30% to 50% full load torque, and will operate at a constant or synchronous speed with no slip. It is advisable to have one or more synchronous motors on all alternating current systems. Each case requires a particular calculation to fit it with the proper sized motor for the conditions and should be referred to those familiar with synchronous motor installations.

Starting of Synchronous Motors: The starting of synchronous motors differs from the starting of induction motors, due to the fact that they have a field which is supplied from an auxiliary, known as an exciter.

Before starting the motor, first see that the field discharge switch is open from the field of the motor, but the motor field must be short circuited through the field discharge resistance. Otherwise, there will be a high voltage discharge between the field coils when the current is thrown on the motor, which is due to a transformer action between the windings. After seeing that the field switch is in its proper position, set the field rheostat at a point to give zero power factor when the switch is thrown in. After these precautions have been taken, the motor is ready to start, and should come up to speed on throwing the compensator into the starting position. When the motor has attained full speed, throw the compensator into running position, and then close the field switch, when the motor will step into synchronism. After this the rheostat should be set for full field current, and the motor will then operate "leading."

To stop the motor, first turn the rheostat back to the zero power factor position, then open the field switch and throw off the compensator, the switches and rheostat being in position for next starting.

If a synchronous motor which has sufficient starting torque to meet the load conditions should fail to start when the current is thrown into the stator windings, it is probably due to the "standing" relation of the field to the stator windings, because of there being an equal number of stator to rotor coils, and should they both be in a central position to each other, the rotor will not have any starting torque. To remedy this move the rotor a slight distance in either direction, and the motor will then start.

USEFUL INFORMATION

ALTERNATING CURRENT FORMULAS

Power Factor of an Alternating-Current is the Number by which the Apparent Power in the Circuit (Volts Times Amperes) must be Multiplied Together in Order to Ascertain True Power. When an Alternating-Current Circuit Contains Inductance, the Current Lags Behind the E. M. F., and when it Contains Capacity the Current Rises Ahead of the E. M. F.; in each case the Current and E. M. F. Reach their Maximum Values at Different Instants, and the Product of the E. M. F. and Current at any Instant is Less than it would be if the Two were in Phase with Each Other. If the E. M. F. and Current be Measured Separately the Voltmeter and Ammeter will give the Individual Mean Effective Values; if they are Measured by a Wattmeter, the Instrument Indicates their Combined Effect Synchronously, not the Product of their Effective Values which Occur at Different Instants. Consequently, the Wattmeter Indication will be Less than the Product of the Separate Voltmeter and Ammeter Readings; the Ratio of the Power to this Product is the Power Factor of the Circuit. Expressed as a Formula:

$$\text{Power Factor} = \frac{\text{Watts}}{\text{Amperes} \times \text{Volts}}$$

This Gives Rise to the Two Methods of Rating Electrical Apparatus, One on the Basis of Watts or Kilowatts, and the Other on the Basis of Volt-Amperes or Kilovolt-Amperes (K. V. A).

The former Represents Actual Power, Usually in K. W., while the Latter represents the Apparent Power, usually in K. V. A. (Kilovolt Ampere), Generated, Transmitted or Used by the Apparatus. The Latter or K. V. A. Rating is Coming into More General Use Since it Represents More Adequately the Voltage and Current Conditions to which the Apparatus is Subjected.

Current per Phase in Various Systems

$$I = \frac{W}{E \times P.F.} \quad \text{for Single-Phase Circuit.}$$

$$I = 0.50 \times \frac{W}{E \times P.F.} \quad \text{for Two-Phase Circuit.}$$

$$I = 0.58 \times \frac{W}{E \times P.F.} \quad \text{for Three-Phase Circuit.}$$

Temp. C.=5/9 (Temp. F.—32) Temp. F.=9/5 Temp. C.—32

I=Current in Line in Amperes; W=Energy Delivered in Watts; E=Potential between Mains in Volts; P. F.=Power Factor. When Power Factor cannot be Accurately Determined it may be Assumed as Follows: Lighting Load with no Motors, 0.95; Lighting and Motors, 0.85; Motors Only, 0.80.

ALTERNATING CURRENT GENERATOR DATA

Speeds—Speeds are Standard to give the Desired Frequency. In Order to Obtain Speed of a 60-Cycle Alternator Divide 7,200 by the Number of Poles. To Obtain Speed of a 25-Cycle Alternator Divide 3,000 by the Number of Poles. 1,200 R. P. M. and 100 R. P. M. are the Maximum Standard Speeds.

Voltage—Standard Voltages are 240, 480, 600, 1,200 and 2,400.

Cycles or Frequency—

Standard Frequencies Most Used are 60-Cycles per Second (7,200 Alternations per Minute), and 25 Cycle, per Second (3,000 Alternations per Minute). To Obtain the Frequency of an Alternator in Cycles per Seconds the Formula is to Multiply the Speed by the Number of Poles and Divide by 120.

60-Cycle Alternators are Almost Entirely Used for Central Stations Lighting and Power.

25-Cycle Alternators are Used for Railway Operation.

Phase—Standard Alternators are Built for Three-Phase or Two-Phase.

Any Three-Phase Alternator will Deliver Continuously 70% to 75 % of its Three-Phase Capacity as Single-Phase Load Connected to any Two of its Three Terminals. The Third Terminal must be Left Disconnected. Two-Phase Machines should not be Used to Supply Single-Phase Current. The Usual Plant Conditions are Best Met by Three-Phase Alternators.

Amperes per Terminal—

Amperes per Terminal at 100% Power Factor are Determined in the Various Systems as Follows:

$$\text{One-Phase Amperes per Terminal} = \frac{\text{K.W.} \times 1000}{\text{Volts}}$$

$$\text{Two-Phase Amperes per Terminal} = \frac{\text{K.W.} \times 500}{\text{Volts}}$$

$$\text{Three-Phase Amperes per Terminal} = \frac{\text{K.W.} \times 580}{\text{Volts}}$$

Regulation—

Regulation is the Percentage Rise in Voltage when Load is Thrown Off, Speed and Excitation Remaining Constant. The Smaller the Rise, the Better the Regulation.

Wave Form—

By Accurate Shaping of the Pole Face and Slots Alternators Give a Wave Form Practically Identical with the Sine Wave, which is the Ideal.

Operation in Parallel—

Alternators of Different Manufacturers will Operate Successfully in Parallel with any Other Alternator, Provided the Angular Velocity does not vary more than 2½ Electrical Degrees, Lagging or Leading, from the Normal. Thus a Total Variation not Exceeding 5 Electrical Degrees is Allowable. An Electrical Degree is the Angle between Adjacent Poles Divided by 180.

USEFUL INFORMATION

WIRING FORMULA

From Ohm's Law the proper size of wire that is necessary to carry a current any distance with a given loss in volts can readily be determined.

$$\text{Length of run in ft.} \times \text{amperes} \times 21.5 = \text{Circular Mils}$$
$$\text{Volts lost.}$$

In the above Formula the number of feet must be measured one way, not both sides of the circuit; volts lost should be taken as the drop allowed in volts, and circular mils show the size of wire to use.

Example:—What size wire should be used on a 250-volt circuit where it is necessary to carry 150 amperes a distance of 300 feet to a center of distribution with a loss of 3 per cent. under full load?

$$\frac{300 \times 150 \times 21.5}{7.5}$$

=129,000 circular mils, or No. 00 B. & S. gauge which is the next size heavier.

In using this or any other formula to determine the size of copper to use, care should be taken to see that the size adopted is not smaller than allowed in the Underwriters' table of safe carrying capacities, which are fixed without considering the loss in line.

The general practice in balanced 3-wire direct-current systems with a central neutral wire is to figure the line loss on the same size as either of the others.

The above Wiring Formula is based upon one foot of copper wire, having a cross sectional area of one circular mil, with a resistance of approximately 10.75 ohms, so that the resistance of any copper wire—

$$\frac{\text{Length in feet} \times 10.75}{\text{Circular Mils}}$$

Substituting this expression for R. in Ohm's Law:

$$E = \frac{C \times \text{length in feet} \times 10.75}{\text{Circular Mils}}$$

and circular mils=

$$\frac{C \times \text{length in feet} \times 10.75}{E}$$

In the Wiring Formula, however, the length in feet is considered the "run" one side of the circuit, and the term 10.75 is multiplied by 2.

CARRYING CAPACITIES OF INSULATED WIRES AND CABLES

B. & S. Gauge Number	Capacity Circular Mils	Amperes: Rubber Insulation	Amperes: Weatherproof Insulation
18	1,624	3	5
16	2,583	6	8
14	4,107	12	16
12	6,530	17	23
10	10,380	24	32
8	16,510	33	46
6	26,250	46	65
5	33,100	54	77
4	41,740	65	92
3	52,630	76	110
2	66,370	90	131
1	83,690	107	156
0	105,500	127	185
00	133,100	150	220
000	167,800	177	262
.....	200,000	200	300
0000	211,600	210	312
.....	300,000	270	400
.....	400,000	330	500
.....	500,000	390	590
.....	600,000	450	680
.....	700,000	500	760
.....	800,000	550	840
.....	900,000	600	920
.....	1,000,000	650	1,000
.....	1,100,000	690	1,080
.....	1,200,000	730	1,150
.....	1,300,000	770	1,220
.....	1,400,000	810	1,290
.....	1,500,000	850	1,360
.....	1,600,000	890	1,430
.....	1,700,000	930	1,490
.....	1,800,000	970	1,500
.....	1,900,000	1,010	1,610
.....	2,000,000	1,050	1,670

Drop of potential is not taken into consideration in the above table. These amperages for rubber-covered wires are adopted because to exceed them may cause gradual deterioration of the insulation even though the change of ignition from overheating may be small.

Wires smaller than No. 14 should not be used except as prescribed in Underwriters' rules.

VOLTS LOST PER 1,000 FEET PER AMPERE

Size Circular Mils	Volts Lost	Size Circular Mils	Volts Lost
2,000,000	0.00535	0000	0.05053
1,750,000	0.00611	000	0.06372
1,500,000	0.00713	00	0.08035
1,250,000	0.00856	0	0.10126
1,000,000	0.01070	1	0.12776
950,000	0.01126	2	0.16109
900,000	0.01189	3	0.20315
850,000	0.01259	4	0.25615
800,000	0.01337	5	0.32302
750,000	0.01427	6	0.40732
700,000	0.01529	7	0.51367
650,000	0.01646	8	0.64767
600,000	0.01783	9	0.81659
550,000	0.01945	10	1.0300
500,000	0.02140	12	1.6375
450,000	0.02378	14	2.6685
400,000	0.02675	16	4.1397
350,000	0.03057	18	6.5828
300,000	0.03567	19	8.5376
250,000	0.04280	20	10.467

USEFUL INFORMATION

COPPER BUS-BAR DATA

Sizes, Weights and Resistances

Thickness In.	Width In.	Wts. Per Ft. at 3.215 Lbs. Per Cubic Inch	Area In Square In.	Ohms Per Ft. at 8.341 Per Square Mil. Ft.	Capacity In Amperes
1/16	1/2	.1205	.0313	.00026691	30
1/16	3/4	.1807	.0469	.00017790	50
1/16	1	.2410	.0625	.00013344	60
1/16	1 1/2	.3615	.0938	.00008897	90
1/8	1/2	.2410	.0625	.00013344	75
1/8	3/4	.3615	.0938	.00008897	90
1/8	1	.4820	.125	.00006672	125
1/8	1 1/2	.7230	.1875	.00004448	200
1/8	2	.9640	.25	.00003336	250
1/4	3/4	.7230	.1875	.00004448	185
1/4	1	.9640	.25	.00003336	250
1/4	1 1/4	1.205	.3125	.00002669	315
1/4	1 1/2	1.446	3.75	.00002224	375
1/4	1 3/4	1.687	.4375	.00001906	435
1/4	2	1.928	.5	.00001668	500
1/4	2 1/4	2.169	.5625	.00001482	565
1/4	2 1/2	2.410	.625	.00001334	630
1/2	3/4	1.446	.375	.00002224	370
1/2	1	1.928	.500	.00001668	500
1/2	1 1/4	2.410	.625	.00001334	625
1/2	1 1/2	2.892	.750	.00001112	750
1/2	1 3/4	3.374	.875	.00000953	875
1/2	2	3.856	1.	.00000834	1000
1/2	2 1/4	4.338	1.125	.00000741	1185
1/2	2 1/2	4.820	1.25	.00000667	1250
1/2	2 3/4	5.304	1.375	.00000606	1375
1/2	3	5.784	1.500	.00000556	1800
1/2	3 1/4	6.266	1.625	.00000513	1625
1/2	3 1/2	6.748	1.750	.00000475	1750
1/2	3 3/4	7.23	1.875	.00000444	1875
1/2	4	7.712	2.000	.00000417	1000
3/4	1	2.892	.750	.00001112	1750
3/4	1 1/2	4.338	1.125	.00000741	1125
3/4	2	5.784	1.500	.00000556	2500
3/4	2 1/2	7.23	1.875	.00000444	2875
3/4	3	8.676	2.250	.00000370	3250
3/4	3 1/2	10.122	2.625	.00000317	2650
3/4	4	11.568	3.000	.00000278	3000

Carrying Capacity is Figured at 1,000 Amperes per Square Inch.

SPACING OF BUS-BARS

Voltage	Distance Between Bus Centers In.	Min. Distance Between Opposite Live Parts In.	Min. Distance Between Live Parts and Ground In.
250	1 1/2 - 2 1/2	1 -2	3/4 -1 1/2
650	2 - 3	1 1/2 -2 1/2	1 -2
1100	4 - 5	1 1/2 -3 1/2	1 1/2 -2 1/2
2200	5 - 6 1/2	2 3/4 -4	2 -2 3/4
4000	6 - 7 1/2	3 -4 1/2	2 1/4 -3
6600	7 - 8	3 1/2 -4 1/2	2 1/2 -3
7500	8 - 9	4 -4 1/2	2 3/4 -3 1/4
9000	9 -10	4 1/4 -4 1/2	3 -3 1/2
11000	9 -11	4 1/2 -4 3/4	3 1/4 -3 3/4
13200	9 -12	4 3/4 -5	3 1/2 -4 1/4
15000	9 -14	5 -5 1/2	3 3/4 -4 1/2
16500	10 -14	5 1/2 -6	4 1/2 -5
18000	11 -14	6 -7	5 -6
22000	12 -15	7 1/2 -9	6 -7
27000	14- 16	10 -12	8 - 9
35000	18- 22	12 -15	10 -12
44000	22- 27	16 -18	13 1/2 -15
60000	28- 31	17 1/2 -19	16 -17 1/2
66000	34- 38	22 -24	18 1/2 -23
75000	36- 42	26 -30	25 -27 1/2
90000	46- 54	32 -35	27 -29
100000	54- 60	34 1/2 -39	28 1/2 -32
110000	60- 72	38 -41	33 -36
122000	66- 78	42 -47	35 1/2 -39
130000	74- 84	48 1/2 -56	39 -41
150000	82- 96	59 -67	45 -50
160000	88-104	70 -84	53 -62

The Distances given for the Lower Values are Based on a Safety Factor of 3 1/2 times between Live Parts of Opposite Polarity and Safety Factor three times Between Live Parts and Grounds. The Larger Values Show Good Practice for the Larger Plants or where the Capacities are Liable to be Increased.

Tubular Buses should be used above 22,000 Volts

USEFUL INFORMATION

UNITS OF MEASURE

The electrical units are derived from the following mechanical units of the metric system:

METER.—A unit of length equal, approximately, to one ten-millionth part of a quadrant of a meridian of the earth taken through Paris; or, approximately, to 39.37 inches.

GRAMME.—Unit of weight. Weight of a cubic centimeter of water at a temperature of 4 degrees centigrade.

SECOND.—Unit of time. The time of one swing of a pendulum making 86,400 swings in a solar day.

ELECTRICAL UNITS

VOLT.—Such an electromotive force as would cause a current of one ampere to flow against a resistance of one ohm. Such an electromotive force as would charge a condenser of the capacity of one farad with a quantity of electricity equal to one coulomb.

OHM.—The practical unit of electric resistance. Such a resistance as would limit the flow of electricity under an electromotive force of one volt, to a current of one ampere, or one-coulomb-per-second.

MEGOHM.—1,000,000 ohms.

AMPERE.—The practical unit of electric current. A rate of flow of electricity transmitting one coulomb per second. The current of electricity which would pass through a circuit whose resistance is one ohm, under an electromotive force of one volt.

COULOMB.—The practical unit of electric quantity. Such a quantity of electricity as would pass in one second through a circuit conveying one ampere. The quantity of electricity contained in a condenser of one farad capacity, when subjected to the E. M. F. of one volt.

FARAD.—The practical unit of electric capacity. Such a capacity of a conductor or condenser that one coulomb of electricity is required to produce therein a difference of potential of one volt.

MICROFARAD (MFD).—One-millionth of a farad.

WATT.—A unit of electric power. A volt-ampere. The power developed when 44.25 foot-pounds of work are done in a minute, or 0.7375 foot-pound of work is done in a second.

JOULE.—A volt-coulomb or unit of electric energy or work. The amount of electric work required to raise the potential of one coulomb of electricity one volt. Ten million ergs.

OHM'S LAW

Ohm's law is a method of expressing relationship existing between the electromotive force, current and resistance, and is practically the basis of most electrical computations. It is expressed in various forms, as follows:

$$\text{Current Flow} = \frac{\text{Electromotive Force}}{\text{Resistance}} \text{ or, } I = \frac{E}{R}$$

Electromotive force equals the current flow multiplied by resistance.

Electromotive Force = Current Flow x Resistance, or $E = I \times R$

Resistance equals the electromotive force divided by the current flow.

$$\text{Resistance} = \frac{\text{Electromotive Force}}{\text{Current Flow}} \text{ or, } R = \frac{E}{I}$$

I = Amperes. E = Volts. R = Ohms.

Electromotive force varies directly as the current and resistance.
Resistance varies directly with the electromotive force and inversely as the current.
Current varies directly with the electromotive force and inversely as the resistance.

MIL

The "mil," whose expressed value is $\frac{\text{One}}{\text{One-Thousandth}}$ (.001) of an inch, is the practical basis for determining the diameters and thereby the area of all wires used as electric conductors. The diameters being given, the area is obtained by the well-known rule, "the area of a circle, in circular units, is equal to the square of its diameter"; hence the square of the diameter of a wire expressed in mils equals the area of its cross section.

$D^2 = A$, which area is expressed in Circular Mils or CM, hence $D^2 = CM$.

WIRING FORMULA

Ohm's law is practically the basis for the various formulæ in general use for determining the proper size of wire to use to carry various currents. It is essential to know the amount of current expressed in amperes, the distance, and to decide upon the loss to allow in transmission; the best rule is as follows:

The cross section (CM) of the necessary wire is found by multiplying twice the distance one way (2D) by the amount of current expressed in amperes (C) and this by the resistance of one mil-foot (10.7) and dividing by the loss in transmission expressed in volts (v).

$$\text{or, } CM = \frac{2D \times C \times 10.7}{v} \text{ or, } CM = \frac{D \times C \times 21.4}{v}$$

USEFUL INFORMATION

METRIC SYSTEM OF WEIGHTS AND MEASURES

MEASURES OF LENGTHS

1	Millimeter	=	0.001	Meter	=	0.0394		Inch
1	Centimeter	=	0.01	Meter	=	0.3937		Inch
1	Decimeter	=	0.1	Meter	=	3.937		Inch
1	Meter	=	1	Meter	=	39.37		Inch
1	Dekameter	=	10	Meters	=	393.7		Inch
1	Hectometer	=	100	Meters	=	328 Feet	1	Inch
1	Kilometer	=	1000	Meters	=	3280 Feet	10	Inches
1	Myriameter	=	10000	Meters	=	6.2137		Miles

It will be noticed that 10 Millimeters equal 1 Centimeter, 10 Centimeters equal 1 Decimeter, and so on.

MEASURES OF VOLUMES

1	Milliliter	=	0.001	Liter	=	0.061	Cubic Inch
1	Centiliter	=	0.01	Liter	=	0.6102	Cubic Inch
1	Deciliter	=	0.1	Liter	=	6.1022	Cubic Inches
1	Liter	=	1	Liter	=	0.9081	Quart
1	Dekaliter	=	10	Liters	=	9.081	Quarts
1	Hectoliter	=	100	Liters	=	2	Bushels 3.35 Pks
1	Kiloliter	=	1000	Liters	=	1.308	Cubic Yards

WEIGHTS

1	Milligramme	=	0.001	Gramme	=	0.0154	Grain
1	Centigramme	=	0.01	Gramme	=	0.1543	Grain
1	Decigramme	=	0.1	Gramme	=	1.5432	Grains
1	Gramme	=	1	Gramme	=	15.432	Grains
1	Dekagramme	=	10	Grammes	=	0.3527	Ounce
1	Hectogramme	=	100	Grammes	=	3.5274	Ounces
1	Kilogramme	=	1000	Grammes	=	2.2046	Pounds
1	Myriagramme	=	10000	Grammes	=	22.046	Pounds

MEASURES OF SURFACE

1	Hectare	=	10000	Square Meters	=	2.471	Acres
1	Are	=	100	Square Meters	=	119.6	Square Yards
1	Centiare	=	1	Square Meter	=	1.550	Square Inches

METRIC AND ENGLISH EQUIVALENTS

Inches	=	Millimeters	÷ 25	Lbs. Advoirdupois	=	Kilogrammes	×	2.20462
Feet	=	Meters	× 3.2803	Tons (2000 lbs.)	=	Kilogrammes	÷	907.18
Yards	=	Meters	× 1.09361	Lbs. per foot	=	Kilo per meter	×	.67196
Miles	=	Kilometers	÷ 1.60935	Lbs. per cwt. ft.	=	Kilo per cu. meter	×	.06243
Sq. Inches	=	Sq. Millimeters	× .00155	Sq. Millimeters	=	Sq. Inches	×	645.137
Sq. Feet	=	Square Meters	× 10.7641	Square Meter	=	Square Feet	×	.0929
Acres	=	Sq. Kilometers	× 247.114	Grammes	=	Ounces	×	28.3495
Cu. Inches	=	Cu. Centimeters	÷ 16.3870	Grammes	=	Pounds	×	453.5926
Cu. Feet	=	Cubic Meters	× 35.3140	Kilogrammes	=	Pounds	×	.45359

FIELD CURRENT IN D. C. DYNAMOS

It has been found that a fair average for the field amperes of different sized dynamos, is as follows:—

K. W.	1	5	10	20	30	50	75	100
Per Cent.	8	6	5	4	3.5	3	3	2.75

The field current (expressed as a percentage of full load current on lines) is determined with all of the resistance out, that is, with rheostat on first notch.

COPPER WIRE RESISTANCE

The basis for computation of resistance of copper wires is a wire 1 foot long and one circular mil of cross section known as a mil-foot, and which has a resistance at 24° C, or 75° F, of about 10.7 Ohms. The resistance of a copper wire varies directly as its length and inversely as its cross section: hence,

The resistance (R) of a copper wire is equal to its length (D) multiplied by the resistance of a mil-foot and divided by the cross section in circular mils (CM).

$$\text{Or, } R = \frac{D \times 10.7}{CM} \text{ also}$$

The cross section (CM) in circular mils of a wire is equal to its length (D) multiplied by the resistance of a mil-foot, divided by its resistance (R).

$$CM = \frac{D \times 10.7}{R} \text{ also}$$

The length (D) of a wire is equal to the cross section in circular mils (CM) multiplied by its resistance (R) and divided by the resistance of a mill-foot.

$$D = \frac{CM \times R}{10.7}$$

USEFUL INFORMATION

MEASURES AND WEIGHTS

Linear Measure

12 inches=1 foot 3 feet=1 yard 5½ yards=1 rod
40 rods=1 furlong 8 furlongs=1 mile

Equivalent Values

Inches	Feet	Yards	Rods	Furl'gs	Miles
36=	3=	1			
198=	16.5=	5.5=	1		
7,920=	660=	220=	40	= 1	
63,360=	5,280=	1,760=	320	= 8	= 1

SQUARE MEASURE

144 square inches=1 square foot
9 square feet=1 square yard
30¼ square yards=1 square rod
160 square rods=1 acre
640 acres=1 square mile

Equivalent Values

Square mile	Acres	Square rods	Square yards
1 =	640 =	102,400 =	3,097,600
Square mile	**Square feet**		**Square inches**
1 =	27,878,400 =		4,014,489,600

Cubic Measure

1,728 cubic inches=1 cubic foot
27 cubic feet=1 cubic yard
128 cubic feet=1 cord
24¾ cubic feet=1 perch
1 cubic yard=27 cubic feet=46,656 cubic inches

Weight—Avoirdupois

437½ grains=1 ounce 16 ounces=1 pound
100 pounds=1 hundredweight
2,000 pounds=1 ton 2,240 pounds=1 long ton
1 ton=20 cwt.=2,000 pounds=32,000 ounces=14,000,000 grains
1 pound av.=7,000 grains

Weight—Troy

24 grains=1 pennyweight 20 pennyweights=1 ounce
12 ounces=1 pound
1 pound=12ounces=240 pennyweights=5,760 grains

Dry Measure

2 pints=1 quart 8 quarts=1 peck
4 pecks=1 bushel
1 bushel=4 pecks 4 pecks=32 quarts=64 pints
U. S. Bushel=2,150.42 cu. in.
British=2,218.19 cu. in.

Liquid Measure

4 gills=1 pint 4 quarts=1 gallon
2 pints=1 quart 31½ gallons=1 barrel
63 gallons or 2 barrels=1 hogshead
1 hogshead=2 barrels=63 gallons=252 quarts=504 pints=2,016 gills
The U. S. gallon contains 231 cu. in.=.134 cu. ft.
1 cubic foot=7.481 gallons and weighs at 39.2 deg. Fahr. 62.425 lbs.
1 gallons weighs 8.45 lbs.
(For ordinary work 1 cu. ft. is considered 7½ gals. 1 gal. 8⅓ lbs.)

MEASURES AND WEIGHTS

Measure of Angles or Arcs

60 seconds=1 minute
60 minutes=1 degree
90 degrees=1 right angle or quadrant
360 degrees=1 circle
1 circle=360°=21,600'=1,296,000"
1 minute of arc on the earth's surface=1 nautical mile=1.17 times a land mile or 6,080 feet

Mariners' Measure

6 feet=1 fathom 5,280 feet=1 stat. mile
120 fathoms=1 cable length
6,085 feet=1 nautical mile
7½ cable lengths=1 mile

Miscellaneous

3 inches=1 palm 18 inches=1 cubit
4 inches=1 hand 21.8 inches=1 bible cubit
9 inches=1 span 2½ feet=1 military pace
12 articles=1 dozen 1 league=3 miles
12 dozen=1 gross 20 articles=1 score
12 gross=1 great gross 24 sheets=1 quire
2 articles=1 pair 20 quires=1 ream

TABLE OF MULTIPLES

Diameter of a circle×3.1416=Circumference.
Radius of a circle×6.283185=Circumference.
Square of the radius of a circle×3.1416=Area.
Square of the diameter of a circle×0.7854=Area.
Square of the circumference of a circle×0.07958=Area.
Half the circumference of a circle×by half its diameter= Area.
Circumference of a circle×0.159155=Radius.
Square root of the area of a circle×0.56419=Radius.
Circumference of a circle×0.31831=Diameter.
Square root of the area of a circle×1.12838=Diameter.
Diameter of a circle×0.86=Side of an inscribed equilateral triangle.
Diameter of a circle×0.7071=Side of an inscribed square.
Circumference of a circle×0.225=Side of an inscribed square.
Circumference of a circle×0.282=Side of an equal square.
Diameter of a circle×0.8862=Side of an equal square.
Base of a triangle×by one-half the altitude=Area.
Multiplying both diameter and .7854 together=Area of an ellipse.
Surface of a sphere×by one-sixth of its diameter=Solidity.
Circumference of a sphere×by its diam.=Surface.
Square of the diam. of a sphere×3.1416=Surface.
Square of the circumference of a sphere×0.3183=Surface.
Cube of the diam. of a sphere×0.5236=Solidity.
Cube of the circumference of a sphere×0.016887=Solidity.
Radius of a sphere×1.1547=Side of an inscribed cube.
Square root of (one-third of the square of) the diam. of a sphere=Side of an inscribed cube.
Area of its base×one-third of its altitude=Solidity of a cone or pyramid, whether round, square or triangular.
Area of one of its sides×6=Surface of a cube.
Altitude of trapezoid×one-half the sum of its parallel sides=Area.

USEFUL INFORMATION

AREA OF CIRCLES

Diameter	Area	Diameter	Area	Diameter	Area
1/8	0.0123	16	201.06	54	2290.2
1/4	0.0491	16 1/2	213.82	55	2375.8
3/8	0.1104	17	226.98	56	2463.0
1/2	0.1963	17 1/2	240.52	57	2551.7
5/8	0.3068	18	254.46	58	2642.0
3/4	0.4418	18 1/2	268.80	59	2733.9
7/8	0.6013	19	283.52	60	2827.4
1	0.7854	19 1/2	298.64	61	2922.4
1 1/8	0.9940	20	314.16	62	3019.0
1 1/4	1.227	20 1/2	330.06	63	3117.2
1 3/8	1.484	21	346.36	64	3216.9
1 1/2	1.767	21 1/2	363.05	65	3318.3
1 5/8	2.073	22	380.13	66	3421.2
1 3/4	2.405	22 1/2	397.60	67	3525.6
1 7/8	2.761	23	415.47	68	3631.6
2	3.141	23 1/2	433.73	69	3739.2
2 1/4	3.976	24	452.29	70	3848.4
2 1/2	4.908	24 1/2	471.43	71	3959.2
2 3/4	5.939	25	490.87	72	4071.5
3	7.068	26	530.93	73	4185.4
3 1/4	8.295	27	572.55	74	4300.8
3 1/2	9.621	28	615.75	75	4417.8
3 3/4	11.044	29	660.52	76	4536.4
4	12.566	30	706.86	77	4656.6
4 1/2	15.904	31	754.76	78	4778.3
5	19.635	32	804.24	79	4901.6
5 1/2	23.758	33	855.30	80	5026.5
6	28.274	34	907.92	81	5153.0
6 1/2	33.183	35	962.11	82	5281.0
7	38.484	36	1017.8	83	5410.6
7 1/2	44.178	37	1075.2	84	5541.7
8	50.265	38	1134.1	85	5674.5
8 1/2	56.745	39	1194.5	86	5808.8
9	63.617	40	1256.6	87	5944.6
9 1/2	70.882	41	1320.2	88	6082.1
10	78.54	42	1385.4	89	6221.1
10 1/2	86.59	43	1452.2	90	6361.7
11	95.03	44	1520.5	91	6502.9
11 1/2	103.86	45	1590.4	92	6647.6
12	113.09	46	1661.9	93	6792.9
12 1/2	122.71	47	1734.9	94	6939.8
13	132.73	48	1809.5	95	7088.2
13 1/2	143.13	49	1885.7	96	7238.2
14	153.93	50	1963.5	97	7389.8
14 1/2	165.13	51	2042.8	98	7542.9
15	176.71	52	2123.7	99	7697.7
15 1/2	188.69	53	2206.1	....	.....

To compute the area of a diameter greater than any in the above table:

Rule:—Divide the dimension by 2, 3, 4, etc., if practicable, until it is reduced to a quotient to be found in the table; then multiply the tabular area of the quotient by the square of the factor. The product will be the area required.

Example:—What is area of diameter of 150? 150÷5=30. Tabular area of 30=706.86, which ×25=17,671.5, area required.

HYDRAULICS

Lbs. per sq. in.=0.434 times head of water in feet.

Head in feet=2.3×pounds per sq. in.

Weight per cu. ft. of water=62.4 lbs.

Weight per gallon of water=8.33 lbs.

If L is the length of a pipe, D is its diameter (both in feet) and V the velocity of flow of liquid in feet per second, the loss of head due to friction, or the friction head, is

$$H = \frac{.02LV^2}{64.4\,D}$$

The total head to be pumped against is considered equal to the sum of the friction head and the actual head.

TABLE SHOWING THE DIFFERENCES BETWEEN WIRE GAUGES

Nos.	Brown & Sharpe's	Old English or London	Stubs' or Birmingham	New British Standard
0000	.460	.454	.454	.400
000	.40964	.425	.425	.372
00	.36480	.380	.380	.348
0	.32486	.340	.340	.324
1	.28930	.300	.300	.300
2	.25763	.284	.284	.276
3	.22942	.259	.259	.252
4	.20431	.238	.238	.232
5	.18194	.220	.220	.212
6	.16202	.203	.203	.192
7	.14428	.180	.180	.176
8	.12849	.165	.165	.160
9	.11443	.148	.148	.144
10	.10189	.134	.134	.128
11	.09074	.120	.120	.116
12	.08081	.109	.109	.104
13	.07196	.095	.095	.092
14	.06408	.083	.083	.080
15	.05706	.072	.072	.072
16	.05082	.065	.065	.064
17	.04525	.058	.058	.056
18	.04030	.049	.049	.048
19	.03589	.042	.042	.040
20	.03196	.035	.035	.036
21	.02846	.0315	.032	.032
22	.025347	.0295	.028	.028
23	.022571	.027	.025	.024
24	.0201	.025	.022	.022
25	.0179	.023	.020	.020
26	.01594	.0205	.018	.018
27	.014195	.01875	.016	.016.4
28	.012641	.0165	.014	.014.8
29	.011257	.0155	.013	.013.6
30	.010025	.01375	.012	.012.4
31	.008928	.01225	.010	.011.6
32	.00795	.01125	.009	.010.8
33	.00708	.01025	.008	.010
34	.0063	.0095	.007	.009.2
35	.00561	.009	.005	.008.4
36	.005	.075	.004	.007.6
37	.00445	.0065	.....	.....
38	.003965	.00575	.....	.....
39	.003531	.005	.....	.....
40	.003144	.0045	.....	.....

The Brown and Sharpe (B. & S.) Wire Gauge, sometimes called American Wire Gauge (A. W. G.), is generally Used in United States. Other Gauges and their Comparative Diameters are also Given in the above Table, Dimensions of Wire are given in Decimal Parts of an Inch.

WEIGHTS AND SPEEDS OF FLYWHEELS

To obtain the weight of rim flywheels in pounds, find the volume of the rim in cubic feet and multiply by 450, the weight of a cubic foot of iron. To allow for the arms, weight must be added as follows:

For wheels up to 8 ft. diameter add 30% of rim weight.

For wheels from 8 ft. to 12 ft. add 40% of rim weight.

For wheels above 12 ft. add 30% of rim weight.

The limiting peripheral speeds for flywheels are as follows:

Cast iron.....5000 to 6000 ft. per minute.
Cast Steel .....10,000 ft. per minute.
Riveted boiler plate..20,000 to 25,000 ft. per min.

USEFUL INFORMATION

EQUIVALENT VALUE IN DIFFERENT UNITS

1 H. P.=

746 watts
.746 K.W.
33,000 ft.-lbs. per minute
550 ft.-lbs. per second
2,545 heat-units per hour
42.4 heat-units per minute
.707 heat-unit per second
.175 lb. carbon oxidized per hour
2.64 lbs. water evaporated per hour from and at 212° F.

1 H. P. Hour=

746 K. W. hours
1,980,000 ft.-lbs.
2,545 heat-units
273,740 k.g.m.
.175 lb. carbon oxidized with perfect efficiency
2.64 lbs. water evaporated from and at 212°F.
17.0 lbs. water raised from 62° to 212° F.

1 Kilowatt=

1,000 watts
1.34 H. P.
2,654,200 ft.-lbs. per hour
44,240 ft.-lbs. per minute
737.3 ft-lbs. per second
3,412 heat-units per hour
56.9 heat-units per minute
.948 heat-unit per second
.2275 lb. carbon oxidized per hour
3.53 lbs. water evaporated per hour from and at 212° F.

1 Watt per Sq. In=

8.19 heat-units per sq. ft. per minute
6,371 ft.-lbs. per sq. ft. per minute
.193 H. P. per sq. ft.

1 Kilogram Meter=

7.233 ft.-lbs.
.00000365 H.P. hour
.00000272 K. W. hour
.0093 heat-unit

1 Lb. Water Evaporated from and at 212° F.=

.283 K. W. hour
.379 H. P. hour
965.7 heat-units
103,900 k. g. m.
1,019,000 joules
751,300 ft.-lbs.
.0664 lb. of carbon oxidized

1 Heat-unit=

1,055 watt seconds
778 ft.-lbs.
107.6 kilogram meters
.000293 K. W. hour
.000393 H.P. hour
.00000688 lb. carbon oxidized
1001036 lb. water evaporated from and at 212° F.

1 Heat-unit per Sq. Ft. per Min.=

.122 watt per sq. in.
.0176 K. W. per sq. ft.
.0236 H.P. per sq. ft.

1 Watt=

1 joule per second
.00134 H. P.
3,412 heat-units per hour
.7373 ft.-lbs. per second
.0035 lb. water evaporated per hour
44.24 ft.-lbs. per minute

1 K. W. Hour=

1,000 watt hours
1.34 H.P. hours
2,645,200 ft.-lbs.
3,600,000 joules
3,412 heat-units
367,000 kilogram meters
.235 lb. carbon oxidized with perfect efficiency
3.53 lbs. water evaporated from and at 212°F.
22.75 lbs. of water raised from 62° to 212° F.

1 Joule=

1 watt second
.000000278 K. W. hour
.102 k. g. m.
.0009477 heat-units
.7373 ft-lb.

1 Ft.-lb.=

1.356 joules
.1383 k. g. m.
.000000377 K. W. hour
.001285 heat-unit
.0000005 H. P. hour

1 Lb. Carbon Oxidized with Perfect Efficiency=

14,544 heat-units
1.11 lbs. anthracite coal oxidized
2.5 lbs. dry wood oxidized
21 cu. ft illuminating gas
4.26 K. W. hours
5.71 H. P. hours
1,315,000 ft.-lbs.
15 lbs. of water evaporated from and at 212° F.

EQUIVALENTS OF ELECTRICAL UNITS

1 Watt=44.236 foot-pounds per minute
1 Watt=2654.16 foot-pounds per hour
1 Kilowatt=44.235 foot-pounds per minute
1 Kilowatt=1.34 H. P.
1 Kilowatt=0.955 B. T. U. per second
1 Kilowatt=57.3 B. T. U. per minute
1 Kilowatt=3438 B. T. U. per hour
1 Horse Power=33000 foot-pounds per minute
1 Horse Power=746 Watts
1 Horse Power=42.746 B. T. U. per minute
1 Horse Power=2564.76 B. T. U. per hour

1 B.T.U. (British Thermal Unit)=772 ft. lbs.
1 B.T.U.=17.452 watt minutes
1 B.T.U.=0.2909 watt hour
Laten heat of evaporation of water=966 B.T.U.
Laten heat of melting of water=142 B. T. U.
To evaporate 1 lb. water from and at 212°=16.859 K. W. minutes
To evaporate 1 lb. water from and at 212°=0.281 K. W. hours
Weight per cu. ft. of watcr=62.42 lbs.
Weight per gallon of water=8.33 lbs.

USEFUL INFORMATION

STANDARD SYMBOLS FOR WIRING PLANS

As recommended and adopted by the Association of Electragists, International, The American Institute of Architects and the American Institute of Electrical Engineers, and approved by the American Engineering Standards Committee.

- Ceiling Outlet
- Ceil. Outlet (Gas and Elec.)
- Ceiling Lamp Receptacle — Specification to Describe Type Such as Key, Keyless or Pull Ch.
- Ceil. Outlet for Extensions
- Ceiling Fan Outlet
- $_{PS}$ Pull Switch
- Drop Cord
- Wall Bracket
- Wall Bracket (Gas and Elec.)
- Wall Outlet for Extensions
- Wall Fan Outlet
- Wall Lamp Receptacle — Specification to Describe Type Such as Key, Keyless or Pull Ch.
- Single Convenience Outlet
- Double Convenience Outlet
- Junction Box
- Special Purpose Outlet — Lighting, Heating and Power as Described in Specification
- Special Purpose Outlet — Lighting, Heating and Power as Described in Specification
- Special Purpose Outlet — Lighting, Heating and Power as Described in Specification
- Exit Light
- Floor Outlet
- Floor Elbow
- Floor Tee
- S^1 Local Switch—Single Pole
- S^2 Local Switch—Double Pole
- S^3 Local Switch—3 Way
- S^4 Local Switch—4 Way
- S^P Automatic Door Switch
- S^K Key Push Button Switch
- S^E Electrolier Switch

- S^P Push But. Switch and Pilot
- S^R Remote Con. Push But. Sw.
- T S Tank Switch
- Motor
- M C Motor Controller
- Lighting Panel
- Power Panel
- Heating Panel
- Pull Box
- Cable Supporting Box
- Meter
- Transformer
- Branch Cir., Run Concealed Under Floor Above
- Branch Circuit, Run Exposed
- Branch Cir., Run Concealed Under Floor
- II — **This Character** Marked on Tap Circuits Indicates 2 No. 14 Conductors in ½" Conduit
- III — **This Character** Marked on Tap Circuits Indicates 3 No. 14 Conductors in ½" Conduit
- IIII — **This Character** Marked on Tap Circuits Indicates 4 No. 14 Conductors in ¾" Conduit Unless Marked ½"
- IIIII — **This Character** Marked on Tap Circuits Indicates 5 No. 14 Conductors in ¾" Conduit
- IIIIII — **This Character** Marked on Tap Circuits Indicates 6 No. 14 Conductors in 1" Conduit Unless Marked ¾"
- IIIIIII — **This Character** Marked on Tap Circuits Indicates 7 No. 14 Conductors in 1" Conduit
- IIIIIIII — **This Character** Marked on Tap Circuits Indicates 8 No. 14 Conductors in 1" Conduit
  Note.—If larger conductors than No. 14 are used, use the same symbols and mark the conductor and conduit size on the run.
- Feeder Run Concealed Under Floor Above
- Feeder Run Exposed
- Feeder Run Concealed Under Floor
- Pole Line
- Push Button

- Buzzer
- Bell
- Annunciator
- Interior Telephone
- Public Telephone
- Clock (Secondary)
- Clock (Master)
- Time Stamp
- E Electric Door Opener
- Local Fire Alarm Gong
- City Fire Alarm Station
- F Local Fire Alarm Station
- Fire Alarm Central Station
- Speaking Tube
- N Nurse's Signal Plug
- M Maid's Plug
- Horn Outlet
- District Messenger Call
- Watchman Station
- Watchman Central Station Detector
- PB Pub. Telephone—PBX Swbd.
- IX Interconnection Telephone Central Switchboard
- Interconnection Cabinet
- Telephone Cabinet
- Telegraph Cabinet
- Spl. Outlet for Signal System — As Described in Specification
- Battery
- Signal Wires in Conduit — Concealed Under Floor
- Signal Wires in Conduit — Concealed Under Floor Above

Suggestions In Connection With Standard Symbols For Wiring Plans

It is important that ample space be allowed for the installation of mains, feeders, branches and distribution panels.

It is desirable that a key to the symbols used accompany all plans.

If mains, feeders, branches and distribution panels are shown on the plans, it is desirable that they be designated by letters or numbers.

Heights of Center of Wall Outlets (unless otherwise specified)

Living Rooms	5′ 6″	Offices	6′ 0″
Chambers	5′ 0″	Corridors	6′ 3″

Height of Switches (unless otherwise specified): 4′ 0″

INDEX TO CONTENTS

A

Page

Accessories, Range, Westinghouse 531
Socket, Bryant 103
Acme Shade Holders 84
Acorns, Socket Chain, Hubbell 152
Adaptable Lamp Changers 464
Adapters, Benjamin 154
Candelabra, P & S 86
Parallel Blade, Benjamin 156
Porcelain, Hubbell 148
Socket, Bryant 103
Adjustable Portables, Faries 436
Adjustables, Holdfast, Matthews 462
Adjusters, Cord, Fibre 85
Cord, Two Ball 85
Cord, Universal 85
Cord, Wood 85
Aglite Lighting Fixtures 427
Air Heaters, Westinghouse 525
Air-O-Mix Whip-All 546
Aisle Light Conduits 71
Alarm Boxes, Fire, Break Glass 255
Fixtures, Fire, Peirce 365
Signals, Fire, Benjamin 240
Springs, Burglar, Edwards 227
Allen Soldering Paste 273
Soldering Salts 273
Soldering Sticks 273
Altman Desk Push Buttons 226
American Arc Lamp Chain 17
Beauty Heating Devices 534
Beauty Soldering Irons 534
Blower Ventilating Fans 540, 542
Blower Ventilating Units 541
Wire Gauge 416
American Heater Cords 14
Rubber Clad Portable Cords 14
Ammeters, Automobile, Westinghouse 318
Pocket, Sterling 458
Recording, Westinghouse 324
Switchboard, Westinghouse 319, 320, 322, 323
Switchboard, Weston 325–327
Anchors, Cinch 381
Everstick 378
Guy, Hubbard 349
Screw, Diamond 382
Screwlix, Matthews 378
Angle Clamps, Peirce 359
Annunciator Wire 16
Annunciators, Holtzer-Cabot 241, 242
Telephone, Couch 245
Ansonia Push Buttons 224, 225
Apartment House Letter Boxes, Couch 249
House Telephones, Couch 250–252
Appliance Cords and Plugs, Smith 157
Appliances, Heating, American Beauty 534
Heating, Industrial, Westinghouse 532, 533
Heating, Westinghouse 521–526
Arc Lamp Chain 17
Lamp Cord, Galvanized 17
Welding Motor Generators, Westinghouse 287
Armature Tape, J-M 262
Tape, Westinghouse 263
Arming Sets, Bo-Arrow, Hubbard 366
Armored Cables, Wire 12
Conductors, Safesteel, Austin 24
Arms, Brace, Streethood, Cutter 500
Bracket, Benjamin 480
Mast, Benjamin 480
Strain, Cutter 504
Telephone, Equipoise 258
Armstrong Table Stoves 535
Waffle Irons 535

Page

Arresters, Lightning, Westinghouse 341–344
Asbestos, Westinghouse 267
Asbestos Braided Tubing, J-M 262
Mill Board 264
Paper 264
Paper Tape, Fibroid, J-M 262
Wood 264
Yarns, J-M 262
Assortments, Brush, Pyramid 292
Conduit 74
Lamp, Flashlight, Eveready 452
Attachment Plugs, Benjamin 156
Plugs, Bryant 112
Plugs, Hubbell 145, 147
Plugs, Motor, Hubbell 147
Plugs, Separable, Hubbell 148
Plugs, Swivel, Benjamin 156
Attachments, Lock, Brylock 96
Motor, Westinghouse 281
Oil Lamp, Hubbell 152
Pull Socket, Hubbell 152
Quick Break, Trumbull 183
Sewing Machine, Hamilton Beach 544
Auger Bits, Mephisto 417
Augers, Earth, Matthews 378
Austin Box Connectors 24, 25
Box Cleats 22
Box Hangers 22
Loom Fasteners 25
Meter Hooks 316
Meter Sealing Tools 316
Meter Seals 316
Old Work Hanger 22
Safesteel Armored Conductors 24
Safesteel Flexible Conduit 24
Autex Automatic Extension Reel 84
Automatic Motorless Flashers, Betts 457
Automobile Ammeters, Westinghouse 318
Autophone Systems, Couch 247, 248
Autovent Fan Louvres 542
Axes, Chopping 418

B

B & D Bench Grinders 291
Electric Screw Driver 292
Portable Drills 289–291
Portable Grinders 291
Valve Grinders 292
Baby Knife Switches, Bryant 178
Back Braces, Cross-Arm, Hubbard 353
Bags, Tool, Klein 407
Bake Ovens, Westinghouse 532
Balance Coils, Westinghouse 336
Balconies, Pole, Hubbard 355
Ball Globes, Glass 434
Balls, Socket, Bryant 103
Bands, Pole, Hubbard 356
Pole, Peirce 369
Bare Copper Wire 9
Barrier Switches, H & H 135, 136
Barrow Reels 415
Bars, Crow 411
Digging, Oshkosh 411
Suspension, Steel 22
Tamping, Oshkosh 411
Bases, Cutout, Bryant 178
Cutout, Plug Fuse, Bryant 174
Fixture, Ceiling, Bryant 117
Fixture, Wall, Bryant 117
Socket, Fluto, P & S 77
Socket, New Wrinkle, Bryant 99

	Page
Bases, Socket, Porcelain, Bryant	104
Socket, Porcelain, P & S	78
Switch, Porcelain, P & S	93
Batteries, Dry, Columbia	458
Gravity	460
Hot Shot, Columbia	458
Radio, Eveready	459
Storage	260
Tungsten, Eveready	451
Wet, Samson	460
Battery Chargers, Rectigon, Westinghouse	339, 340
Clips, Universal	461
Connectors	461
Coppers	460
Switches, Edwards	227
Zincs	460
Bayonet Shell Sockets, Bryant	101
Bayonets, Wire, Ground, Hubbard	365
Bell Hangers' Bits	417
Push Plates, Bryant	125, 126
Ringers, Westinghouse	260
Ringing Transformers, Jefferson	259
Ringing Transformers, Killark	260
Bells, Box, Iron, PR	230
Cable End, EEE	207
Double Gong, Holtzer-Cabot	237
Eclipse, PR	230
Electro-Mechanical, Faraday	234
Electro-Mechanical, Holtzer-Cabot	237
Enclosed Type, Faraday	233
Extension, Loud Ringing, Holtzer-Cabot	237
Heavy Duty, Holtzer-Cabot	237
Holtzer-Cabot	236
Marlo, PR	230
Monitor, Edwards	229
Monitor, PR	230
Recti, Edwards	228
Signal, Faraday	235
Single, Stroke, Edwards	228
Single Stroke, Schwarze	236
Skeleton, Economy, Edwards	229
Skeleton, Ekla	232
Skeleton, Faraday	232
Transformer, Edwards	229
Vibrating, Enclosed Type, Schwarze	236
XXX, PR	230
Belt and Safety Strap, Klein	407
Belting, Motor, Leather	286
Motor, Rubber	286
Belts, Tool, Klein	407
Bench Grinders, B & D	291
Benco Sockets, Benjamin	155
Benders, Conduit, Rittenhouse	23
Conduit, Wiremold	29
Pipe, Marine	22
Bends, Conduit, Fibre	23
Benjamin Adapters	154
Attachment Plugs	156
Benco Sockets	155
Bracket Arms	480
Buzzers	240
Ceiling Lamp Guards	476
Chain Suspensions	480
Cord Connectors	156
Cross-Arms	480
Dust-Proof Fixtures	478
Elliptical Angle Reflectors	470
Fire Alarm Signals	240
Fixture Guards	476
Fixture Parts	480
Gas-Proof Fixtures	478, 479

	Page
Benjamin Gooseneck Brackets	480
Heavy Duty Reflector	471
Illumination Data	467, 468
Industrial Clusters	465
Industrial Signals	239
Mast Arms	480
Mogul Base Sockets	155
Moisture-Proof Fixtures	478
Outlet Box Cover	471
Outlet Box Lamp Guards	476
Parallel Blade Adapter	156
Pendent Lamp Guards	476
Pipe Stems	480
Plug Sockets	153, 154
Pole Fittings	480
Porcelain Enameled Steel Reflectors,	469–471, 473–475
Portable Clusters	465
Portable Lamps	476
Reflector Fittings	471
Reflector Guards	476
Reflector Sockets	469
RLM Reflectors	469, 472
Sewing Machine Reflectors	475
Shade Holder Reflectors	473, 474
Shade Holders	155
Show Case Reflectors	475, 477
Socket Extensions	154
Socket Reducers	154
Stand Lamp Clusters	154
Suspension Fittings	480
Telecode Relays	240
Type RR Threaded Fixtures	472
Vapor-Proof Fixtures	478, 479
Vapor-Proof Portable Lamps	476
Viaduct Reflectors	471
Window Reflectors	475
Wireless Clusters	154
Benjamin-Starrett Panel Boards	218–222
Betts Automatic Motorless Flashers	457
Color Caps	454
Sign Flashers	456
Bit Holders, Extension	417
Bits, Auger, Mephisto	417
Bell Hangers'	417
Electricians'	417
Expansive, Mephisto	417
Blackburn's Ground Clamps	21
Neverslip Cable Hanger	378
Blake Compressed Cleats	261
Insulated Staples	261
Blank Plates, Bryant	126
Blocks, Fuse, Distribution Transformer, Westinghouse	171
Fuse, Expulsion Type, Westinghouse	170
Fuse, Trumbull	176
Troublemen's, Klein	406
Blow Torches, C & L	421
Blue Vitriol	460
Boards, Mill, Asbestos	264
Panel, Benjamin-Starrett	218–222
Panel, Residence, Benjamin-Starrett	222
Panel, Westinghouse	212–217
Bo-Arrow Arming Sets, Hubbard	366
Bodies, Socket, Fluto, P & S	76
Socket, Flutolier, P & S	77
Socket, New Wrinkle, Bryant	97
Socket, Porcelain, Bryant	104
Socket, Porcelain, P & S	78
Socket, Wrinklet, Bryant	100
Switch, Fluto, P & S	76
Switch, New Wrinkle, Bryant	97, 98
Bolt Clevises, Hubbard	350

Page

Bolts, Carriage, Hubbard ... 351
Clevis, Hubbard ... 368
Double Arming, Hubbard ... 351
Expansion, Cutter ... 512
Expansion, Diamond ... 382
Expansion, Keystone ... 382
Expansion, Lead Sleeve, Peirce ... 376
Expansion, Westinghouse ... 385
Eye, Hubbard ... 351
Fork, Hubbard ... 356
Fork, Insulated, Westinghouse ... 389
Foundation, Cutter ... 512
Insulator Hook, Hubbard ... 367
Machine, Hubbard ... 351
U, Hubbard ... 367

Bonding Tools, Westinghouse ... 391

Bonds, Rail, Westinghouse ... 389, 390

Books, Meter, Austin ... 316

Border Light Cable ... 13

Boring Machines, Jones ... 414

Boudoir Iron, Westinghouse ... 523
Lamps, ESRobert ... 439

Box Bells, Iron, PR ... 230
Buzzers, Iron, PR ... 230
Clamps, Switch, Union ... 45
Cleats, Austin ... 22
Connectors, Austin ... 24, 25
Covers, Outlet, Union ... 34–39
Extension Rings, Outlet, Union ... 39
Hangers, Austin ... 22
Receptacles, Outlet P & S ... 92
Supports, Switch, Kruse ... 22

Boxes, Cable, National ... 47
Concrete, Union ... 42
Cutout ... 209, 210
Fire Alarm, Break Glass ... 255
Floor, Stage, Westinghouse ... 159
Fuse, Distribution Transformer, Westinghouse ... 171
Letter, Apartment House, Couch ... 249
Outlet, Union ... 34, 35, 37, 38, 40–42
Receptacle, Union ... 47
Switch, Sectional, Union ... 43–46
Switch, Solid, Union ... 43
Switch, Union ... 42, 47
Wall, Westinghouse ... 159

Boxwood Rules ... 417

Brace Arms, Streethood, Cutter ... 500

Braces, Corner ... 417
Cross-Arm, Hubbard ... 353
Ratchet ... 417
Vertical, Hubbard ... 353

Bracket Arms, Benjamin ... 480
Corner Irons, Peirce ... 373
Fans, Westinghouse ... 536, 537
Parts, Streethood, Cutter ... 500

Brackets, Break Arm, Peirce ... 371
Construction, Corner, Hubbard ... 365, 367
Cross-Arm, Peirce ... 371, 372
Distributing, Peirce ... 372
Drive, Brick, Peirce ... 374
Extension, Peirce ... 369
Gooseneck, Benjamin ... 480
Hook, Forged, Peirce ... 374
Hook, Prussian, Peirce ... 374
Hotel Sample Room, Bryant ... 116
Iron, Break, Hubbard ... 375
Iron, Malleable ... 377
Mine, Peirce ... 355
Pole ... 348
Pole Top, Peirce ... 356

Page

Brackets, Presteel Screw Pin, Peirce ... 358
Ridge Iron, Peirce ... 368
Single Pole, Peirce ... 371
Streethood, Cutter ... 496, 500
Telephone, Burns ... 258
Telephone, Hubbard ... 375
Telephone, Suspension, Peirce ... 371
Transposition, Hubbard ... 375
Transposition, Peirce ... 374
Tree, Insulated, Peirce ... 374
Trolleylite, Cutter ... 513
Wall, Bryant ... 117
Wall, Ornamental, Cutter ... 514
Wall, Peirce ... 373, 374

Bragdon Sockets, Bryant ... 108

Branch-Off Connectors ... 158

Brascolite Lighting Fixtures ... 425–427
Wire Guards ... 426

Brass Cleats ... 261
Shell Sockets, Bryant ... 109
Wood Screws ... 380

Break Arm Brackets, Peirce ... 371
Glass Fire Alarm Boxes ... 255
Iron Bracket, Hubbard ... 375

Breakers, Circuit, Oil, Westinghouse ... 300–309

Brewery Cord ... 15

Brick Drive Brackets, Forged, Peirce ... 374

Bridal Wire ... 16

Broad Base Steel Pins, Peirce ... 357

Bronx Push Buttons ... 226

Brush Assortments, Pyramid ... 292

Brushes, Carbon, National ... 293–295

Bryant Assembled Sockets ... 100
Attachment Plugs ... 112
Baby Knife Switches ... 178
Bayonet Shell Sockets ... 101
Bell Push Plates ... 125, 126
Blank Plates ... 126
Brass Shell Sockets ... 109
Bull's Eye Combinations ... 119
Bull's Eye Plates ... 117
Bull's Eye Receptacles ... 118
Candelabra Sockets ... 110
Candle Sockets ... 102
Canopy Switches ... 111
Ceiling Fixture Bases ... 117
Cleat Receptacles ... 105, 106
Cutout Bases ... 178
Decorative Lighting Sockets ... 107
Decorative Pull Chains ... 107
Disappearing Door Receptacles ... 116
Enclosed Fuse Cutouts ... 175
Entrance and Panel Switches ... 173
Flush Receptacle Plates ... 114, 115
Flush Receptacles ... 113, 114, 116, 118
Hospital Signal System ... 123
Hotel Sample Room Brackets ... 116
Interchangeable Porcelain Line ... 104
Marine Plugs and Receptacles ... 112
Miniature Receptacles ... 110
Miniature Sockets ... 110
Mogul Base Lamp Receptacles ... 109
Mogul Base Lamp Sockets ... 109
New Wrinkle Line ... 97–99
Outlet Box Receptacles ... 104, 105, 106
Plug Fuse Cutout Bases ... 174
Pull Receptacles ... 107
Push Switch Plates ... 122
Push Switches ... 122
Range Switches ... 129, 130
Reflector Socket ... 109

Page

Bryant Shade Holders ... 84
Sign Receptacles ... 106
Snap Switches ... 126
Socket Accessories ... 103
Socket Tassels ... 107
Spartan Line ... 113, 114
Special Sockets ... 95
Special Finishes ... 96
Surface Switches ... 126
Telephone Plates ... 125
Tumbler Switch Plates ... 125
Tumbler Switches ... 124, 132
Wall Brackets ... 117
Wall Fixture Bases ... 117
Weatherproof Sockets ... 108
Wire Connectors ... 160
Wood Mats ... 124
Wrinklet Fixture Socket Line ... 100

Brylock Lock Attachments ... 96

Buffer Attachment, Sewing Machine Motor ... 544

Buffing Motors, Westinghouse ... 280

Bulldog Lamp Guard ... 464

Bull's Eye Combinations, Bryant ... 119
Eye Plates, Bryant ... 117
Eye Receptacle Plates, H & H ... 143
Eye Receptacles, Bryant ... 118

Burglar Alarm Springs, Edwards ... 227

Burns Telephone Brackets ... 258

Bus-Bar Copper ... 332

Bushings, Clamp, Federal ... 157
Conduit ... 21
Socket ... 84
Universal ... 25

Button Plates, Push, Holtzer-Cabot ... 242

Buttons, Call, Elevator, Holtzer-Cabot ... 242
Ceiling, P & S ... 90
Push, Ansonia ... 224, 225
Push, Bronx ... 226
Push, Car ... 225
Push, Conduit ... 227
Push, Desk ... 225
Push, Desk, Altman ... 226
Push, Dixie Jr. ... 227
Push, Edwards ... 227
Push, Floor ... 227
Push, High Voltage ... 227
Push, Midget Jr. ... 227
Push, Pear ... 225
Push, Table Clamp ... 225
Push, Wood ... 225

Buz-A-Bel, Edwards ... 229

Buzzers, Box, Iron PR ... 230
Eclipse, PR ... 230
Enclosed Type, Faraday ... 232
Factory, Benjamin ... 240
Langen, Edwards ... 229
Marlo, PR ... 230
Mine, Benjamin ... 240
Office, Benjamin ... 240
Watchcase, Edwards ... 229
Watchcase, PR ... 230
XXX, PR ... 230

C

C-H Feed Through Switches ... 157
Float Switches ... 299
Magnetic Clutches ... 288
Pendent Switches ... 157
Pressure Regulators ... 299
Theater Dimmers ... 455, 456

C & L Fire Pots ... 422
Torches ... 421

Page

Cabinets, Display and Vending, Flashlight, Eveready ... 451
Panel Board, Benjamin-Starrett ... 218–222
Switch ... 209, 211

Cable, Border Light ... 13
Deck ... 13
Elevator Control ... 13
Elevator Lighting ... 13

Insulated, Varnished Cambric ... 11
Lead Encased, Rubber Insulated ... 10
Locomotive Gathering ... 12
Mining Machine ... 12, 16
Portable Duracord ... 16
Rubber Clad ... 12
Rubber Covered ... 7
Rubber Insulated, Special ... 13
Stage ... 13
Steel Taped, Safety ... 11
Switchboard, Flexible ... 7
Theater ... 13
Welding Machine ... 12
Wire Armored ... 12

Cable Boxes, National ... 47
Clamps, Matthews ... 379
Cross-Arms, Hubbard ... 354
Duct Shields, Hubbard ... 355
End Bells, EEE ... 207
Hangers, Neverslip, Blackburn's ... 378
Insulation, J-M ... 262
Knife, Klein ... 408
Racks, Underground, Peirce ... 355
Rollers, Klein ... 406
Suspension Clamps, Hubbard ... 354
Tapes, Westinghouse ... 263

Cake Mixer Attachment, Sewing Machine Motor ... 544

Caliper Rules, Boxwood ... 417

Call Buttons, Elevator, Holtzer-Cabot ... 242

Candelabra Adapters, P & S ... 86
Sockets, Bryant ... 110
Sockets, P & S ... 86

Candle Sockets, Bryant ... 102
Sockets, P & S ... 86

Canopy Rosettes, P & S ... 89
Switches, Bryant ... 111
Switches, P & S ... 85

Canopies, Faries ... 435

Cant Hook Handles, Oshkosh ... 415
Hooks, Oshkosh ... 410

Canvas Bags, Tool, Linemen's ... 407

Canvasite Cord ... 15

Caps, Color, Belts ... 454
Drive, Hubbard ... 349
Plug, Interchangeable, Hubbell ... 145
Plug, Spartan, Bryant ... 113
Porcelain, Hubbell ... 148
Socket, Pluto, P & S ... 76
Socket, New Wrinkle, Bryant ... 98
Socket, Porcelain, Bryant ... 104
Socket, Porcelain, P & S ... 78
Socket, Wrinklet, Bryant ... 100

Car Push Buttons ... 225

Carbon Brushes, National ... 293–295
Lamps ... 450

Carriage Bolts, Hubbard ... 351
Carrying Hooks, Oshkosh ... 410
Hooks, Western Union ... 410

Cartridge Fuses, Enclosed, Westinghouse, ... 166, 168, 169
Heaters, Westinghouse ... 532

Cases, Fuse ... 165

Casings, Fuse, Plug, Economy ... 165

Cedar Poles ... 346, 347

Page

Ceiling Buttons, P & S 90
Fans, Westinghouse 538
Fixture Bases, Bryant 117
Lamp Guards, Benjamin 476
Light Receptacles, P & S 93
Lights, Faries 434
Cells, Dry, Columbia 458
Dry, Radio, Eveready 459
Unit, Eveready 451
Chafing Dishes, Westinghouse 524
Chain Acorns, Socket, Hubbell 152
Clamps, Cutter 505
Guides, Socket, P & S 81
Suspensions, Benjamin 480
Chains, Fixture, P & S 83
Lamp, Arc 17
Pull, Decorative, Bryant 107
Changers, Lamp, Adaptable 464
Lamp, Holdfast, Matthews 462
Chargers, Battery, Rectigon, Westinghouse 339, 340
Charging Plugs, Westinghouse 160
Receptacles, Westinghouse 160
Chase Couplings 21
Chatterton Compound, Crescent 273
Chicago Wire Grips 406
Chisels 418
Chocolate Warmers, Westinghouse 532
Choke Coils, Westinghouse 345
Christmas Tree Outfits 454
Chucks, Hand, Peirce 376
Cinch Anchors 381
Circuit Breakers, Oil, Westinghouse 300–309
Clamp Bushings, Federal 157
Knobs, Cutter 504
Pins, Peirce 359
Pins, Side, Peirce 359
Straps, Suspension, Hubbard 354
Clamps, Angle, Peirce 359
Cable, Matthews 379
Cable, Suspension, Hubbard 354
Chain, Cutter 505
Crossover, Hubbard 354
Fuse Block, Peirce 359
Ground, Blackburn 21
Ground, Suretite 21
Ground Wire, Hubbard-Belcher 367
Guy, Two-Bolt, Matthews 379
Mine, Westinghouse 385
Pipe, Peirce 359
Rope, Cutter 505
Splicing, Klein 405
Switch Box, Union 45
Clay Conduit Dowel Pins, Hubbard 355
Cleaners, Vacuum, Sunshine 535
Clearsite Plug Fuses 165
Cleat Receptacles, Bryant 105, 106
Cleats, Box, Austin 22
Brass 261
Compressed, Blake 261
Fibre 261
Porcelain 397
Rope, Cutter 505
Clevis Bolt, Hubbard 368
Clevises, Bolt, Hubbard 350
Cross-Arm, Peirce 368
Dead-Ending, Peirce 368
Strain Insulator, Hubbard 368
Climbers, Eastern 408
Linemen's, Klein 408
Climber's Straps, Eastern 408
Clips, Battery, Universal 461

Page

Clips, Fuse, Trumbull 177
Test, Universal 461
Wire, Rope, Hubbard 350
Clocks, Time, Tork 515
Cloths, Insulating, Westinghouse 265
Clusters, Industrial, Benjamin 465
Lamp, Stand, Benjamin 154
Portable, Benjamin 465
Wireless, Benjamin 154
Clutches, Magnetic, C-H 288
Coffee Percolators, Westinghouse 521, 522
Urn Heaters, Westinghouse 526
Urns, Westinghouse 521, 522
Coils, Balance, Westinghouse 336
Choke, Westinghouse 345
Color Caps, Betts 454
Coloring, Lamp, Crescent 451
Columbia Dry Batteries 458
Hot Shot Batteries 458
Combination Plates, H & H 143, 144
Combinations, Bull's Eye, Bryant 119
Commodity Friction Tape, Westinghouse 263
Compass Saws 419
Compensator Switches, Trumbull 198
Compounds, Chatterton, Crescent 273
Insulating, Westinghouse 267
Splicing, J-M 262
Splicing, Westinghouse 263
Compressors, Screw, Westinghouse 391
Concrete Boxes, Union 42
Conductors, Armored, Safesteel, Austin 24
Conduit, Fibre 23
Flexible, Safesteel, Austin 24
Non-Metallic, Flexible 25
Steel, Rigid 20
Wiremold 26, 27
Conduit Bender, Rittenhouse 23
Bender, Wiremold 29
Bends, Fibre 23
Bushings 21
Couplings 20
Couplings, Erickson 21
Dowel Pins, Clay, Hubbard 355
Elbow Former 23
Elbows 20
Fittings 21, 22
Fittings, Electrolet 33
Fittings, Fibre 23
Fittings, Wiremold 26–29
Hub Plates 68, 73
Reamers, Lightning 418
Sizes, Standard 20
Straps, Hubbard 354
Wiremold 26
Conduit Assortments 74
Bodies, Obround 48–50
Covers 57
Covers and Accessories 59
Covers, Obround 51–54
Covers, Receptacle 62–64
Covers, Switch 62–64
Finishes 74
Fixture Globes 70
Fixture Guards 70
Fixture Joint 74
Gaskets, Obround 55
Plug Receptacle Housings 60, 63, 73
Receptacle Plugs 60, 66–68
Reducers 74
Reflector Holders 70
Unions 74
Vaporproof Fixtures 61

Page

Condulets, Aisle Light ... 71
Mine ... 75
Plug Receptacle ... 66, 67, 68
Safety Switch ... 68
Type A ... 48
Type AF ... 75
Type B ... 48
Type BE ... 48
Type C ... 48
Type CO ... 48
Type COV ... 48
Type CUB ... 48
Type E ... 48
Type F ... 49
Type FE ... 49
Type FFM ... 75
Type FML ... 75
Type FS ... 61–64
Type FSA ... 61
Type FSC ... 61–64
Type FSCG ... 61
Type FSCT ... 61
Type FSD ... 63
Type FSL ... 61
Type FSR ... 61
Type FSS ... 61
Type FST ... 61
Type FSX ... 61
Type G ... 56
Type GA ... 56
Type GL ... 56
Type GS ... 58
Type GSA ... 58
Type GSC ... 58, 59
Type GSE ... 59
Type GSL ... 58
Type GSS ... 58
Type GSSC ... 58
Type GST ... 58
Type GSX ... 58
Type GT ... 56
Type GX ... 56
Type H ... 56
Type HA ... 56
Type HH ... 56
Type HHC ... 57
Type HLA ... 57
Type J ... 65
Type JA ... 65
Type JB ... 65
Type JT ... 65
Type K ... 65
Type KC ... 65
Type KD ... 65
Type LA ... 71
Type LAL ... 71
Type LAR ... 71
Type LB ... 49
Type LBB ... 49
Type LF ... 49
Type LFB ... 49
Type LL ... 49
Type LLB ... 49
Type LR ... 49
Type LRB ... 49
Type MKS ... 68
Type P ... 71
Type PC ... 71
Type PM ... 71
Type PMC ... 71
Type QE ... 67
Type QEC ... 67

Page

Condulets, Type QED ... 66, 67
Type QEE ... 66, 67
Type QEF ... 66
Type QEG ... 66
Type QEJ ... 66, 67
Type RJ ... 65
Type RJB ... 65
Type RK ... 65
Type T ... 50
Type TA ... 50
Type TB ... 50
Type TBL ... 51
Type TL ... 50
Type TR ... 50
Type U ... 50
Type UB ... 50
Type UF ... 51
Type V ... 69
Type VA ... 69
Type VC ... 69
Type VE ... 70
Type VF ... 70
Type VH ... 69
Type VHA ... 69
Type VHC ... 69
Type VHE ... 70
Type VHF ... 70
Type VHJ ... 70
Type VHL ... 69
Type VHT ... 69
Type VHX ... 69
Type VJ ... 70
Type VL ... 69
Type VT ... 69
Type VX ... 69
Type X ... 51
Type XA ... 51
Type YC ... 72
Type YW ... 72
Type YWS ... 72
Type YY ... 72
Vaporproof ... 69, 70

Conduletto Cord Rosettes, Norbitt ... 65
Cord Rosettes, Obround ... 55
Fixture Rosettes, Norbitt ... 65
Fixture Rosettes, Obround ... 55
Receptacles, Norbitt ... 65
Receptacles, Obround ... 55

Cones, Ground, Paragon ... 379

Connecting Links, Hubbard ... 368

Connector Plugs, Smith ... 157

Connectors, Battery ... 461
Box, Austin ... 24, 25
Cord, Benjamin ... 156
Cord, Hubbell ... 147
Cord, Polarized, Hubbell ... 148
Fixture, Sherman ... 164
Separable, Midget ... 461
Separable, Rectangular ... 461
Sherman ... 164
Solderless, Frankel ... 160–163
Stage, Kliegl ... 158
Wire, Bryant ... 160

Construction Brackets, Corner, Hubbard ... 365, 367

Control Panels, Westinghouse ... 516

Controllers, Motor, Westinghouse ... 297, 298

Convenience Outlet Plates, Hubbell ... 146
Outlets, Hubbell ... 146

Cooper-Hewitt Rectifier Outfits, Westinghouse, ... 337, 338

Copper Clad Telephone Wire ... 7
Trolley Wire ... 9
Wire, Bare ... 9

Page

Coppers, Battery 460
Bus-Bar 332

Cord, Arc Lamp, Galvanized 17
Brewery 15
Canvasite 15
Fixture 15
Heater 14
Lamp, Parallel 15
Lamp, Twisted 15
Packing House 13
Portable, Duracord 16
Portable, Reinforced 15
Portable, Rubber Clad 14
Rubber Insulated, Special 13
Spot, Sansom 17

Cord Adjusters, Fibre 85
Adjusters, Two Ball 85
Adjusters, Universal 85
Adjusters, Wood 85
Connectors, Benjamin 156
Connectors, Hubbell 147
Connectors, Polarized, Hubbell 148
Rosettes, Conduletto, Norbitt 65
Rosettes, Conduletto, Obround 55

Corner Braces 417
Construction Brackets, Hubbard 365, 367
Irons, Bracket, Peirce 373
Plates, Streethood, Cutter 500

Cotton Covered Magnet Wire 18

Couch Apartment House Letter Boxes 249
Apartment House Telephones 250–252
Autophone Systems 247, 248
Hand Telephones 252
Intercommunicating Telephones 245–247
Telephone Annunciators 245
Telephones 243–245
Vestibule Telephones 249
Yankee Telephones 243

Counters, Pole 416

Couplings, Chase 21
Conduit 20
Conduit, Erickson 21
Pipe Extension, Westinghouse 385

Covers, Conduit 57, 59
Conduit, Obround 51–54
Conduit, Receptacle 62–64
Conduit, Switch 62–64
Outlet Box, Benjamin 471
Outlet Box, Union 34–39

Cozy-Glow Radiators, Westinghouse 525

Crane Pipe Vises 418

Creamers and Sugars, Westinghouse 522

Crescent Chatterton Compound 273
Lamp Coloring 451
Lamp Guards 464

Cross-Arm Back Braces, Hubbard 353
Arm Braces, Hubbard 353
Arm Brackets, Peirce 371, 372
Arm Clevises, Peirce 368
Arm Saddles, Prestecl, Peirce 360
Arm Straps, Peirce 359
Arms 348
Arms, Benjamin 480
Arms, Cable, Hubbard 354
Arms, Steel, Hubbard 364
Arms, Streethood, Cutter 500

Crossover Clamps, Hubbard 354

Crouse-Hinds Floodlight Projectors 519
Roundhouse Reflectors 520

Crow Bars 411

Crowfoot Zincs 460

Curling Iron, Westinghouse 524

Page

Current Taps, Hubbell 148, 152
Taps, Signalite 148
Transformers, Westinghouse 330

Cutter Casing Top Fitters 512
Column Top Fitters 512
Expansion Bolts 512
Foundation Bolts 512
Inverted Cone Streethoods 501
Multiple Streethood Parts 499
Multiple Streethoods 498, 499
Ornamental Wall Brackets 514
Pendent Lantern 511
Potheads 512
Single Light Post Tops 511
Single Light Posts 507–510
Standard Series Streethoods 494
Street Lighting Equipment 504, 505
Streethood Bracket Parts 500
Streethood Brackets 496, 500
Streethood Sockets 497
Suspension Series Streethood Parts 495
Trolleylite Brackets 513
Universal Porcelain Heads 497

Cutters, Pipe, Saunders 418
Wire, New Easy 419

Cutting Devices, Pipe, Toledo 420

Cutout Bases, Bryant 178
Bases, Plug Fuse, Bryant 175
Boxes 209, 210
Hangers, Automatic, Westinghouse 490

Cutouts, Fuse, Enclosed, Bryant 175
Protective, Safety Switch 198

Cylinder Zincs 460

D

Daisy Floor Treads 225

Damp-Proof Office Wire 16

Data, Illumination, Benjamin 467, 468
Useful 548–558

Dead Ending Clevises, Peirce 368
Ending Straps, Peirce 369

Deadend Eye, Matthews 379

Deck Cables 13

Desk Fans, Westinghouse 536, 537
Lamps, Portable, ESRobert 437–439
Push Buttons 225
Push Buttons, Altman 226
Telephones, Kellogg 253

Detachable Pole Step, Peirce 352

Detroit Screw-It Insulators 397

Devices, Heating American Beauty 534
Heating, Westinghouse 521–526

Diamond Expansion Bolts 382
Expansion Shields 382
Screw Anchors 382
Side Cutting Pliers 404

Diamond S Connector Plug 157
Cord and Plug 157

Digging Bars, Oshkosh 411

Dim-A-Lites 454

Dimmers, Theater, C-H 455, 456

Disappearing Door Receptacles, Bryant 116

Disc Stoves, Westinghouse 526

Discharge Horns, Hubbard 367

Disconnecting Switches, EEE 207
Switches, Matthews 223
Switches, Westinghouse 204

Dishes, Chafing, Westinghouse 524

Distributing Brackets, Peirce 372
Knob Racks, Peirce 370

Page

Distribution Transformer Fuse Blocks, Westinghouse ... 171
Transformer Fuse Boxes, Westinghouse ... 171
Transformers, Westinghouse ... 333–335
Door Openers, Edwards ... 255
Springs, Burglar Alarm ... 227
Switches, Self-Restoring, Perkins ... 112, 120
Trips, Burglar Alarm ... 227
Double Arming Bolts, Hubbard ... 237
Gong Bells, Holtzer-Cabot ... 237
Dreadnaught Lamp Guards ... 464
Drills, Hammer, Peirce ... 376
Portable, B & D ... 290, 291
Portable, Electric, B & D ... 289
Rail, Electric, Duntley ... 391
Ratchet, Yankee ... 414
Drink Mixers, Hamilton Beach ... 546
Drive Brackets, Brick, Forged, Peirce ... 374
Caps, Hubbard ... 349
Points, Peirce ... 349
Drop Forged Clevises, Peirce ... 368
Forged Eyes, Hubbard ... 367
Wire, Duplex, Telephone ... 7
Dry Batteries, Columbia ... 458
Cell Radio Batterics, Everready ... 459
Dryers, Hair, Hamilton Beach ... 546
Shoe, Hamilton Beach ... 546
Duct Shields, Cable, Hubbard ... 355
Duntley Electric Rail Drills ... 391
Portable Electric Grinders ... 391
Duplex Drop Wire, Telephone ... 7
Duracord Portable Cable ... 16
Portable Cord ... 16
Dust-Proof Fixtures, Benjamin ... 478

E

EDSH Fixture Stems ... 435
Fixture Supports ... 435
EEE Cable End Bells ... 207
Disconnecting Switches ... 207
Pole Top Switches ... 205
Rural Line Equipment ... 206
ESRobert Portable Lamps ... 437–440
Ears, Trolley, Westinghouse ... 386
Eastern Climbers ... 408
Climber's Straps ... 408
Ebony Asbestos Wood ... 264
Eclipse Bells, PR ... 230
Buzzers, PR ... 230
Economy Clearsite Plug Fuses ... 165
Plug Fuse Casings ... 165
Renewable Plug Fuses ... 165
Skeleton Bells, Edwards ... 229
Sockct Extenders ... 152
Edison Fuse Plugs ... 165
Edwards Battery Switches ... 227
Burglar Alarm Springs ... 227
Buz-A-Bel ... 229
Door Openers ... 255
Economy Skeleton Bells ... 229
Lungen Buzzers ... 229
Monitor Bell ... 229
Push Buttons ... 227
Recti Bells ... 228
Return-Call Push and Bell ... 226
Single Stroke Bells ... 228
Transformer Bells ... 229
Watchcase Buzzer ... 229
Ekla Skeleton Bells ... 232
Elbow Formers, Conduit ... 23
Elbows, Conduit ... 20
Metal Molding ... 30

Page

Electrical Mica ... 272
Slate ... 264
Electricians' Bits ... 417
Levels ... 416
Snips ... 419
Electrolet Conduit Fittings ... 33
Electrolier Switches, Perkins ... 127
Electro-Mechanical Bells, Holtzer-Cabot ... 237
Mechanical Gongs, Faraday ... 234
Elevator Call Buttons, Holtzer-Cabot ... 242
Control Cable ... 13
Lighting Cable ... 13
Elexits, Hubbell ... 149–151
Elliptical Angle Reflectors, Benjamin ... 470
Enameled Magnet Wire ... 18
Enclosed Cartridge Fuses, Westinghouse, ... 166, 168, 169
Fuse Cutouts, Bryant ... 175
Type Buzzers, Faraday ... 232
Type Gongs, Faraday ... 233
Type Vibrating Bells, Schwarze ... 236
End Cutting Pliers ... 404
Entrance Switches, Bryant ... 173
Switches, Trumbull ... 195, 196
Equipoise Telephone Arms ... 288
Erickson Conduit Couplings ... 21
Esterline Angus Graphic Instruments ... 328, 329
Etching Ink, Glass, Reed's ... 451
Etch-O-Lite ... 451
Eureka Fibre Insulators ... 261
Everready Flashlight Display and Vending Cabinet ... 451
Flashlight Lamp Assortments ... 452
Flashlights ... 452
Radio Batteries ... 459
Tungsten Batteries ... 451
Unit Cells ... 451
Everstick Anchors ... 378
Exhaust Fans, Westinghouse ... 539
Expansion Bolts, Cutter ... 512
Bolts, Diamond ... 382
Bolts, Keystone ... 382
Bolts, Lead Sleeve, Peirce ... 376
Bolts, Westinghouse ... 385
Shields, Diamond ... 382
Expansive Bits, Mephisto ... 417
Expulsion Type Fuse Blocks, Westinghouse ... 170
Extenders, Socket, Hubbell ... 152
Extension Bells, Loud Ringing, Holtzer-Cabot ... 237
Bit Holders ... 417
Brackets, Peirce ... 369
Fixtures, Hubbard ... 353
Reel, Automatic, Autex ... 84
Rings, Outlet Box, Union ... 39
Extensions, Pole, Peirce ... 364
Sockct, Benjamin ... 154
Eye Bolts, Hubbard ... 351
Nuts, Hubbard ... 350
Nuts, Serulix, Matthews ... 379
Eyes, Deadened, Matthews ... 379
Drop Forged, Hubbard ... 367
Suspension, Westinghouse ... 490

F

Fan Attachment, Sewing Machine Motor ... 544
Louvres, Autovent ... 542
Speed Regulators, Wirt ... 454
Fans, Bracket, Westinghouse ... 536, 537
Ceiling, Westinghouse ... 538
Desk, Westinghouse ... 536, 537
Exhaust, Westinghouse ... 539
Ventilating, American Blower ... 540, 542
Ventilating, Westinghouse ... 539
Ventura, Reversible, American Blower ... 542

Page

Faraday Electro-Mechanical Gongs 234
Enclosed Type Buzzers 232
Enclosed Type Gongs 233
Signal Gongs 235
Skeleton Bells 232

Faries Adjustable Portables 436
Canopies 435
Ceiling Lights 434
Flexible Arm Portables 436
Metal Shades 465

Fasteners, Loom, Austin 25
Loom, H & H 25

Federal Clamp Bushings 157
Electric Lanterns 460
Sirens 238
Feed Through Switches, C-H 157
Wire Holders, Fletcher 403
Wire Insulators, Westinghouse 384

Fibre, White, Westinghouse 266

Fibre Cleats 261
Conduit 23
Conduit Bends 23
Conduit Fittings 23
Cord Adjusters 85
Insulating Material 272
Insulators, Eureka 261

Fibroid Asbestos Paper Tape, J-M 262

Fire Alarm Boxes, Break Glass 255
Alarm Fixtures, Peirce 365
Alarm Signals, Benjamin 240
Pots, C & L 422

Finishes, Condulet 74
Special, Bryant 96
Special, P & S 82

Finishing Materials, Westinghouse 268

Fish Wire, Superior 23

Fitters, Casing Top, Cutter 512
Column Top, Cutter 512

Fittings, Conduit 21, 22
Conduit, Electrolet 33
Conduit, Fibre 23
Conduit, Wiremold 26–29
Metal Molding 30, 31
Pole, Benjamin 480
Reflector, Benjamin 471
Suspension, Benjamin 480
Wiremold, Conduit 26

Fixture Bases, Ceiling, Bryant 117
Bases, Wall, Bryant 117
Chain, P & S 83
Connectors, Sherman 164
Cord 15
Globes, Condulet 70
Guards, Benjamin 476
Guards, Condulet 70
Joint, Condulet 74
Loops, P & S 89
Parts, Benjamin 480
Rosettes, Conduletto, Norbitt 65
Rosettes, Conduletto, Obround 55
Sockets, P & S 94
Stems, EDSH 435
Studs, Hickey 21
Supports, EDSH 435
Switch, Levolier 107
Wire 6

Fixtures, Dust-Proof, Benjamin 478
Extension, Hubbard 353
Fire Alarm, Peirce 365
Gas-Proof, Benjamin 478, 479
Knob, Peirce 375
Lighting, Aglite 427

Page

Fixtures, Lighting, Brascolite 425–427
Lighting, Red Spot, Wakefield 428
Lighting, Sechrist 429–433
Lighting, Westinghouse 423, 424
Moisture-Proof, Benjamin 478
Threaded, Type RR, Benjamin 472
Vapor-Proof, Benjamin 478, 479
Vapor-Proof, Condulet 61
Vapor-Proof, Westinghouse 488, 489

Flameproof Jumper Wire 16

Flashers, Midget, Skedoodle 457
Motorless 457
Motorless, Automatic, Betts 457
Sign, Betts 456
Skedoodle 457

Flashing Plugs, Skedoodle 457

Flashlight Display and Vending Cabinets, Eveready 451
Lamp Assortments, Eveready 452

Flashlights, Eveready 452

Fletcher Feed-Wire Holders 403
Insulated Racks 402

Flexible Arm Portables, Faries 436
Conduit, Non-Metallic 25
Conduit, Safesteel, Austin 24

Flanges, Wall, Streethood, Cutter 500

Flat Irons, American Beauty 534
Irons, Little Beauty 534
Irons, Westinghouse 523

Float Switches, C-H 299

Floodlight Projectors, Crouse-Hinds 519
Projectors, Westinghouse 491
Projectors, X-Ray 520

Floodlights, Show Window, X-Ray 481

Flood-Ray Portable Reflector, X-Ray 481
Window Reflector, X-Ray 481

Floor Boxes, Stage, Westinghouse 159
Outlets, Fullman 32, 33
Portables, ESRobert 440
Treads, Daisy 225

Flush Receptacle Plates, Bryant 114, 115
Receptacles, Bryant 113, 114, 116, 118
Receptacles, H & H 139
Receptacles, Hubbell 147

Fluxes, Soldering, Westinghouse 268

Folding Steel Pocket Rules 417
Take Up Reels 415

Forged Brick Drive Brackets, Peirce 374
Clevises, Drop, Peirce 368
Hook Brackets, Peirce 374
Steel Pins, Peirce 357, 358, 362, 363

Fork Bolts, Hubbard 356
Bolts, Insulated, Westinghouse 389

Forks, Insulated, Hubbard 356

Formers, Elbow, Conduit 23

Frames, Hack Saw 419

Frankel Solderless Connectors 160–163

Free-Westinghouse Sewing Machines 547

Friction Tapes, Commodity, Westinghouse 263
Tapes, J-M 262
Tapes, Manson 263
Tapes, Westinghouse 263

Frogs, Trolley, Westinghouse 387

Fullman Door Outlets 32, 33

Fuse Block Clamps, Peirce 359
Blocks, Distribution Transformer, Westinghouse 171
Blocks, Expulsion Type, Westinghouse 170
Blocks, Trumbull 176
Boxes, Distribution Transformer, Westinghouse 171
Cases 165

Page

Fuse Casings, Plug, Economy 165
Clips, Trumbull 177
Cutout Bases, Plug, Bryant 174
Cutouts, Enclosed, Bryant 175
Holders, Trumbull 177
Plugs, Edison 165
Plugs, Refillable, H & H 165
Ribbon, Westinghouse 165
Strip, Union 166
Wire, Union 166
Wire, Westinghouse 165
Fuses, Cartridge, Enclosed, Westinghouse, ... 166, 168, 169
High Tension, Westinghouse 170
Non-Indicating, Noark 167
Plug, Clearsite 165
Plug, Edison 165
Plug, Refillable, H & H 165
Plug, Renewable, Economy 165
Protective, Instrument 165
Fuswitches, Matthews 223

G

G & W Potheads 208
Galvanized Arc Lamp Cord 17
Telegraph Wire 17
Telephone Wire 17
Garage Testing Set, Weston 325
Gas Pliers 418
Gas-Proof Fixtures, Benjamin 478, 479
Gaskets, Conduit, Obround 55
Gauges, Wire, American 416
Generators, Motor, Arc-Welding, Westinghouse 287
Motor, Westinghouse 282
Giant Steel-Clad Gongs, PR 231
Glass Ball Globes 434
Etching Ink, Reed's 451
Insulators, Hemingray 392, 393
Shades 434
Globes, Ball, Glass 434
Fixture, Condulet 70
Portable Lamp, Vaporproof 71
Gloves, Rubber, Linemen's 416
Glower Stoves, American Beauty 534
Glue, Insulating, Westinghouse 268
Glue Pots, Bench, Wallace 533
Pots, Westinghouse 533
Gongs, Electro-Mechanical, Faraday 234
Enclosed Type, Faraday 233
Schoolyard, Holtzer-Cabot 236
Signal, Faraday 235
Steel-Clad, Giant, PR 231
Gooseneck Brackets, Benjamin 480
Goosenecks, Streethood, Cutter 500
Grabaphones, Kellogg 253
Graphic Instruments, Esterline-Angus 328–329
Gravity Batteries 460
Green Glass Shades 434
Porcelain Half Shades 434
Grinder Attachment, Sewing Machine Motor 544
Grinders, Bench, B & D 291
Portable, B & D 291
Portable, Electric, Duntley 291
Portable, Hamilton Beach 546
Valve, B & D 292
Grinding Motors, Westinghouse 280
Grip-It Insulators, Porcelain 396
Gripon Lamp Guards 463
Grips, Wire, Chicago 406
Wire, Haven's 406
Wire, Klein 406

Page

Ground Clamps, Blackburn 21
Clamps, Suretite 21
Cones, Paragon 379
Pipes, Hubbard 349
Plates, Hubbard 349
Rods, Hubbard 349
Wire Bayonets, Hubbard 365
Wire Clamps, Hubbard-Belcher 367
Guards, Fixture, Benjamin 476
Fixture, Condulet 70
Lamp, Bulldog 464
Lamp, Ceiling, Benjamin 476
Lamp, Crescent 464
Lamp, Dreadnaught 464
Lamp, Gripon 463
Lamp, Holdfast, Matthews 462
Lamp, Loxon 463, 464
Lamp, Monitor 464
Lamp, Outlet Box, Benjamin 476
Lamp, Pendent, Benjamin 476
Lamp, Portable 464
Lamp, Portable, Vaporproof 71
Lamp, Reflector 463
Lamp, Standard 464
Reflector, Benjamin 476
Wire, Brascolite 426
Guides, Chain, Socket, P & S 81
Guy Anchors, Hubbard 349
Clamps, Two-Bolt, Matthews 379
Hooks, Hubbard 350
Shims, Hubbard 350
Thimbles, Hubbard 349
Wire 17
Wire Clamps, Hubbard 349

H

H & H Barrier Switches 135, 136
Bull's Eye Receptacle Plates 143
Combination Plates 143, 144
Flush Receptacles 139
Loom Fasteners 25
Momentary Contact Switches 137, 138
Motor Control Switches 136
Push Button Switch Plates 142
Push Button Switches 137, 138
Refillable Fuse Plugs 165
Snap Switches 136
Surface Switches 133–135
Tumbler Switch Plates 142
Tumbler Switches 139
Wiring Diagrams 140, 141
Hack Saw Blades 419
Saw Frames 419
Hair Dryers, Hamilton Beach 546
Half and Half Solder 273
Reflectors, Faries 465
Reflectors, Hubbell 466
Shades, Porcelain, Green 434
Hamilton Beach Drink Mixers 546
Hair Dryers 546
Jeweler's Lathe Motor 544
Massage Vibrators 545
Portable Grinders 546
Sewing Machine Attachments 544
Sewing Machine Motors 544
Shoe Dryer 546
Hammer Drills, Peirce 376
Hammers 418
Hand Chucks, Peirce 376
Telephones, Couch 252
Handles, Cant Hook, Oshkosh 415

Page

Handles, Loy, Oshkosh ... 415
Peavy, Oshkosh ... 415
Pole, Pike, Oshkosh ... 411
Shovel, Post Hole ... 412
Socket, Bryant ... 102
Spoon, Post Hole ... 412
Switch, Perkins ... 130
Tamping Bar, Oshkosh ... 415
Tree Trimmer, Oshkosh ... 412

Hangers, Box, Austin ... 22
Cable, Neversllp, Blackburn's ... 378
Cutout, Automatic, Westinghouse ... 490
Messenger, Hubbard ... 354
Old Work, Austin ... 22
Red Spot, Wakefield ... 428
Sign, Peirce ... 355
Suspension, Westinghouse ... 490
Swivel, Westinghouse ... 490

Hatchets, Broad ... 418

Haven's Wire Grips ... 406

Headlights, Locomotive, Mine, Westinghouse, ... 491, 492

Heads, Porcelain, Universal, Cutter ... 497

Heaters, Air, Westinghouse ... 525
Cartridge, Westinghouse ... 532
Immersion, Westinghouse ... 525
Space, Westinghouse ... 532
Steel-Clad, Westinghouse ... 532
Urn, Coffee, Westinghouse ... 526
Water, Tumbler, Westinghouse ... 525

Heating Appliances, Industrial, Westinghouse, ... 532, 533
Devices, American Beauty ... 534
Devices, Westinghouse ... 521-526

Heatolite, Portable, ESRobert ... 440

Heavy Duty Bells, Holtzer-Cabot ... 237
Duty Reflector, Benjamin ... 471

Hemco Plug Sockets ... 153

Hemingray Glass Insulators ... 392, 393

Hickey Fixture Studs ... 21

Hickeys, Lakin ... 23

High Tension Fuses, Westinghouse ... 170
Tension Insulators, Hemingray ... 393

Highway Lighting Unit, Westinghouse ... 503

Hippo Portable Reflectors, X-Ray ... 481
Window Floodlight, X-Ray ... 481

Hi-Ten Pole Extensions, Peirce ... 360

Holders, Bit, Extension ... 417
Feed-Wire, Fletcher ... 403
Fuse, Trumbull ... 177
Reflector, Condulet ... 70
Shade, Acme ... 84
Shade, Benjamin ... 155
Shade, Bryant ... 84
Shade, Hubbell ... 84
Shade, P & S ... 83
Shade, Weatherproof ... 84
Wire, Peirce ... 370

Holdfast Adjustables, Matthews ... 462
Lamp Changers, Matthews ... 462
Lamp Guards, Matthews ... 462
Lamp Shades, Matthews ... 462
Portable Lamps, Matthews ... 462

Holtzer-Cabot Annunciators ... 241, 242
Bells ... 236
Double Gong Bells ... 237
Electro-Mechanical Bells ... 237
Elevator Call Buttons ... 242
Heavy Duty Bells ... 237
Hospital Signal Systems ... 256, 257
Loud Ringing Extension Bells ... 237

Page

Holtzer-Cabot Schoolyard Gongs ... 236
Signaling Apparatus ... 242
Testing Magnetos ... 254

Hood Insulators, Streethood, Cutter ... 500
Reflectors, X-Ray ... 482

Hook Bolts, Insulator, Hubbard ... 367
Brackets, Forged, Peirce ... 374
Brackets, Prussian, Peirce ... 374

Hooks, Cant, Oshkosh ... 410
Carrying, Oshkosh ... 410
Carrying, Western Union ... 410
Guy, Hubbard ... 350

Horns, Electric, Holtzer-Cabot ... 237

Hospital Signal Systems, Bryant ... 123
Signal Systems, Holtzer-Cabot ... 256, 257

Hot Plates, Westinghouse ... 526
Shot Batteries, Columbia ... 458

Hotel Sample Room Brackets, Bryant ... 116

Housings, Receptacle, Plug, Condulet ... 60, 63, 73

Hub Plates, Conduit ... 68, 73

Hubbard Bo-Arrow Arming Sets ... 366
Bolt Clevises ... 350
Break Iron Brackets ... 375
Cable Cross-Arms ... 354
Cable Duct Shields ... 355
Cable Suspension Clamps ... 354
Carriage Bolts ... 351
Clay Conduit Dowel Pins ... 355
Clevis Bolt ... 368
Conduit Straps ... 354
Connecting Links ... 368
Corner Construction Brackets ... 365, 367
Cross-Arm Back Braces ... 353
Cross-Arm Brace ... 353
Crossover Clamps ... 354
Discharge Horns ... 367
Double Arming Bolts ... 351
Drive Caps ... 349
Drop Forged Eyes ... 367
Extension Fixtures ... 353
Eye Bolts ... 351
Eye Nuts ... 350
Fork Bolts ... 356
Ground Pipes ... 349
Ground Plates ... 349
Ground Rods ... 349
Ground Wire Bayonets ... 365
Guy Anchors ... 349
Guy Hooks ... 350
Guy Shims ... 350
Guy Thimbles ... 349
Guy Wire Clamps ... 349
Insulated Forks ... 356
Insulator Hook Bolts ... 367
Insulator Pins ... 357
Lag Screws ... 351
Lamp Trimmer's Leg Rest ... 352
Machine Bolts ... 351
Manhole Ladders ... 355
Messenger Hangers ... 354
Pole Balconies ... 355
Pole Bands ... 356
Pole Dating Nails ... 352
Pole Steps ... 352
Pothead Supports ... 354
Pulling-In Irons ... 355
Reinforcing Link ... 354
Ridge Irons ... 368
Steel Cross-Arms ... 364
Strain Insulator Clevises ... 368
Strain Plates ... 350
Suspension Clamp Straps ... 354
Telephone Brackets ... 375

Page

Hubbard Transposition Brackets 375
Turnbuckles 356
U Bolts 367
Vertical Braces 353
Washers 350
Wire Rope Clips 350
Wood Top Pins 357

Hubbard-Belcher Ground Wire Clamps 367
Suspension Insulator Equipment 367

Hubbell Attachment for Pull Sockets 152
Attachment Plugs 145, 147
Convenience Outlet Plates 146
Convenience Outlets 146
Cord Connectors 147
Current Taps 148, 152
Elexits 149–151
Flush Receptacles 147
Interchangeable Plug Caps 145
Metal Reflectors 466
Motor Attachment Plugs 147
Motor Plugs 147
Oil Lamp Attachments 152
Polarized Cord Connectors 148
Porcelain Adapters 148
Porcelain Caps 148
Pull Socket Attachments 152
Separable Attachment Plugs 148
Shade Holders 84
Socket Chain Acorns 152
Socket Extenders 152
Triplex Table Tap 147

I

Illumination Data, Benjamin 467, 468

Immersion Heaters, Westinghouse 525

Imperial Incandescent Floodlight Projectors, Crouse-Hinds 519

India Mica 272

Indicators, Load, Transformer, Westinghouse 336
Speed 416
Tank, Patterson 234

Industrial Clusters, Benjamin 465
Heating Appliances, Westinghouse 532, 533
Signals, Benjamin 239

Information, Useful 548–558

Ink, Etching, Glass, Reed's 451

Inspectors' Leather Tool Bags 407

Instrument Paper, Recording 316
Protective Fuses 165

Instruments, Graphic, Esterline-Angus 328, 329
Pocket, Sterling 458
Recording, Westinghouse 324
Switchboard, Westinghouse 319, 320, 322, 323
Switchboard, Weston 325–327
Testing, Weston 325

Insulated Fork Bolts, Westinghouse 389
Forks, Hubbard 356
Nails, Perfection 261
Racks, Fletcher 402
Spreader Racks, Peirce 370
Staples, Blake 261
Tree Brackets, Peirce 374
Turnbuckles, Westinghouse 389

Insulating Compounds, Westinghouse 267
Glue, Westinghouse 268
Material, Fibre 272
Material, Westinghouse 265–268, 271
Oils, Westinghouse 268
Tapes, P & B 263

Insulation, Cable, J-M 262

Page

Insulator Equipment, Suspension, Hubbard-Belcher 367
Hook Bolts, Hubbard 367
Pins 384
Pins, Hubbard 357
Pins, Peirce 357
Pins, Prestcel, Peirce 358

Insulators, Cap and Cone, Westinghouse 383
Feed Wire, Westinghouse 384
Fibre, Eureka 261
Glass, Hemingray 392, 393
Grip-It, Porcelain 396
Hood, Streethood, Cutter 500
Nail-It, Porcelain 396, 397
Porcelain 395–397
Porcelain, Westinghouse 398–401
Screw-It, Porcelain 397
Secondary Rack, Peirce 369
Split, Porcelain 396
Strain, Westinghouse 389
Strain, Wood, Westinghouse 388
Street Lighting, Cutter 505

Interchangeable Plug Caps, Hubbell 145
Porcelain Line, Bryant 104

Intercommunicating Telephones, Couch 245–247

Interior Wires, Telephone 16
Wires, Twisted Pair 16

Inverse Time Protective Cutouts, Safety Switch, Trumbull 198

Inverted Cone Streethoods, Cutter 501

Iron Box Bells, PR 230
Box Buzzers, PR 230
Bracket, Break, Hubbard 375
Brackets, Malleable 377
Brackets, Ridge, Peirce 368
Pins, Malleable 377
Wood Screws 380

Irons, Corner, Bracket, Peirce 373
Curling, Westinghouse 524
Flat, American Beauty 534
Flat, Little Beauty 534
Flat, Westinghouse 523
Pulling-In, Hubbard 355
Ridge, Hubbard 368
Soldering, American Beauty 534
Waffle, Armstrong 535
Waffle, Westinghouse 526

J

J-M Armature Tape 262
Asbestos Braided Tubing 262
Asbestos Woven Tape 262
Asbestos Yarns 262
Cable Insulation 262
Fibroid Asbestos Paper Tape 262
Friction Tapes 262
Splicing Compounds 262

Jack Rabbit Type Sewing Machine Motors 544

Jacks, Cable Reel, Simplex 409
Pole Pulling, Simplex 409

Janitors' Telephones, Couch 250, 251

Jefferson Bell Ringing Transformers 259
Sign Lighting Transformers 260
Toy Transformers 259

Jewelers' Lathe Motor, Hamilton Beach 544

Joints, Fixture, Conduit 74

Jones Adjustable Pipe Vises 414
Boring Machine 414

Jove Reflectors, X-Ray 482

Jumper Wire, Flameproof 16

Junction Boxes 209

Page

Junior Bell Ringing Transformer ... 259
Jupiter Reflectors, X-Ray ... 482

K

Kappa Knife Switches ... 183
Kellogg Mine Telephone ... 254
Telephone Switchboards ... 254
Telephones ... 253
Kester Flux Solder ... 273
Keys, Shurlok, P & S ... 80
Keystone Battery Switches ... 227
Expansion Bolts ... 382
Killark Bell Ringing Transformers ... 260
Klein Belt and Safety Strap ... 407
Cable Knife ... 408
Cable Rollers ... 406
Di-Stock Sleeve Twister ... 405
Lag Screw Wrench ... 406
Leather Pouches ... 408
Linemen's Climbers ... 108
Plier Pockets ... 408
Pliers ... 404, 405
Pocket Tool Cases ... 408
Safety Straps ... 408
Splicing Clamps ... 405
Tool Bags ... 407
Tool Belts ... 407
Tree Trimmers ... 406
Troublemen's Blocks ... 406
Wire Grips ... 406
Kliegl Stage Connectors ... 158
Stage Pockets ... 158
Knife, Cable, Klein ... 408
Knife Switches, Bahy, Bryant ... 178
Switches, Kappa ... 183
Switches, Type C, Trumbull ... 182, 183
Switches, Westinghouse ... 180, 181
Knives, Draw, Linemen's ... 418
Knob Fixtures, Peirce ... 375
Fixtures, Swinging, Peirce ... 370
Racks, Distributing, Peirce ... 370
Knobs, Clamp, Cutter ... 504
Telephone, Porcelain ... 397
Knockout Reducer, Rohn ... 22
Kruse Switch Box Supports ... 22
Kwikon No-Bolt Studs ... 21

L

Ladders, Manhole, Hubbard ... 355
Ladles, Melting ... 273
Lag Screw Wrenches, Klein ... 406
Screws ... 22
Screws, Hubbard ... 351
Lakin Hickeys ... 23
Lamp Assortments, Flashlight, Eveready ... 452
Attachments, Oil, Hubbell ... 152
Chain, Arc ... 17
Changers, Adaptable ... 464
Changers, Holdfast, Matthews ... 462
Clusters, Stand, Benjamin ... 154
Coloring, Crescent ... 451
Cord, Arc, Galvanized ... 17
Cord, Parallel ... 15
Cord, Twisted ... 15
Guard Sockets ... 464
Guards, Bulldog ... 464
Guards, Ceiling, Benjamin ... 476
Guards, Crescent ... 464
Guards, Dreadnaught ... 464
Guards, Gripon ... 463

Page

Lamp Guards, Holdfast, Matthews ... 462
Guards, Loxon ... 463, 464
Guards, Monitor ... 464
Guards, Outlet Box, Benjamin ... 476
Guards, Pendent, Benjamin ... 476
Guards, Portable ... 464
Guards, Portable, Vaporproof ... 71
Guards, Reflector ... 463
Guards, Standard ... 464
Information, Mazda ... 447, 448
Shades, Holdfast, Matthews ... 462
Trimmer's Leg Rest, Hubbard ... 352
Lamps, Carbon ... 450
Mazda, Bowl Enamel ... 441, 444
Mazda, Country Home Lighting ... 443
Mazda, Daylight ... 445
Mazda, Decorative ... 441
Mazda, Flame Tinted ... 446
Mazda, Floodlighting ... 446
Mazda, Frosted ... 441
Mazda, Locomotive Headlight ... 445
Mazda, Mill Type ... 441, 444
Mazda, Mine ... 442
Mazda, Projection ... 446
Mazda, Sign Lighting ... 444
Mazda, Street Railway ... 443
Mazda, Street Series ... 442, 443
Mazda, Train Lighting ... 442, 445
Mazda, Tubular ... 444
Mazda, White ... 441
Miniature, Mazda, Westinghouse ... 449
Portable, Benjamin ... 476
Portable, ESRobert ... 437–440
Portable, Holdfast, Matthews ... 462
Portable, Vaporproof ... 70, 71
Portable, Vaporproof, Benjamin ... 476
Lanterns, Electric, Federal ... 460
Pendent, Cutter ... 511
Lathe Motors, Jewelers', Hamilton Beach ... 544
Lead Encased Cables, Rubber Insulated ... 10
Sleeve Expansion Bolts, Peirce ... 376
Thread Pin Thimbles ... 360
Leather Bags, Tool, Inspectors' ... 407
Motor Belting ... 286
Pouches, Klein ... 408
Leg Rest, Lamp Trimmer's, Hubbard ... 352
Letter Boxes, Apartment House, Couch ... 919
Levels, Electrician's ... 416
Pocket ... 416
Levolier Fixture Switch ... 107
Lighting Equipment, Street, Cutter ... 504, 505
Fixtures, Aglite ... 427
Fixtures, Brascolite ... 425–427
Fixtures, Red Spot, Wakefield ... 428
Fixtures, Seehrist ... 429–433
Fixtures, Westinghouse ... 423, 424
Transformers, Sign, Jefferson ... 260
Transformers, Westinghouse ... 518
Unit, Highway, Westinghouse ... 503
Lights, Ceiling, Faries ... 434
Lightning Arresters, Westinghouse ... 341–344
Conduit Reamer ... 418
Line Equipment, Rural, EEE ... 206
Section Switches, Westinghouse ... 387
Linemen's Canvas Tool Bags ... 407
Climbers, Klein ... 408
Rubber Gloves ... 416
Torch, Staysalite ... 408
Links, Connecting, Hubbard ... 368
Reinforcing, Hubbard ... 354
Switch, Safety, Trumbull ... 198
Splicing, Socket, Bryant ... 103
Lock Attachments, Brylock ... 96
Switches, Burglar Alarm ... 227

Page

Locknuts ... 21
Locks, Pole, Cutter ... 505
Locomotive Gathering Cables ... 12
Headlights, Mine, Westinghouse ... 491, 492
Long Duck Bill Pliers ... 404
Needle Nose Pliers ... 404
Nose Pliers ... 404
Loom ... 25
Fasteners ... 25
Loops, Fixture, P & S ... 89
Socket, P & S ... 89
Loud Ringing Extension Bells, Holtzer-Cabot ... 237
Louvres, Fan, Autovent ... 542
Loxon Lamp Guards ... 463, 464
Loy Handles, Oshkosh ... 415
Tools, Oshkosh ... 411
Lug Hooks, Oshkosh ... 410
Lugs, Soldering, Sherman ... 164
Luminous Socket Pendents, Bryant ... 103
Top Socket Fixtures, Westinghouse ... 487
Lungen Buzzers, Edwards ... 229
Luxsolite Pendants, Westinghouse ... 502

M

Machine Attachments, Sewing, Hamilton Beach ... 544
Bolts, Hubbard ... 351
Cable, Mining ... 16
Motors, Sewing, Hamilton Beach ... 544
Reflectors, Sewing, Benjamin ... 475
Machines, Boring, Jones ... 414
Sewing, Free-Westinghouse ... 547
Magnet Wire ... 18
Magnetic Clutches, C-H ... 288
Magnetos, Testing, Holtzer-Cabot ... 254
Malleable Iron Brackets ... 377
Iron Pins ... 377
Manhole Ladders, Hubbard ... 355
Manson Friction Tape ... 263
Marine Plugs and Receptacles, Bryant ... 112
Marlo Bells, PR ... 230
Buzzers, PR ... 230
Martin Pipe Benders ... 22
Vise Stands ... 22
Massage Vibrators, Hamilton Beach ... 545
Mast Arms, Benjamin ... 480
Mats, Wood, Bryant ... 124
Matthews Cable Clamps ... 379
Deadend Eye ... 379
Disconnecting Switches ... 223
Earth Augers ... 378
Fuswitches ... 223
Holdfast Adjustables ... 462
Holdfast Lamp Changers ... 462
Holdfast Lamp Guards ... 462
Holdfast Lamp Shades ... 462
Holdfast Portable Lamps ... 462
Serulix Anchors ... 378
Serulix Eyenuts ... 379
Slack Puller ... 379
Two-Bolt Guy Clamp ... 379
Woodpecker Telefaults ... 223
Wrenches ... 378
Mazda Lamp Information ... 447, 448
Lamps, Bowl Enamel ... 441, 444
Lamps, Country Home Lighting ... 443
Lamps, Daylight ... 445
Lamps, Decorative ... 441
Lamps, Flame Tinted ... 446
Lamps, Floodlighting ... 446
Lamps, Frosted ... 441
Lamps, Locomotive Headlight ... 445

Page

Mazda Lamps, Mill Type ... 441, 444
Lamps, Mine ... 442
Lamps, Projection ... 446
Lamps, Sign Lighting ... 444
Lamps, Street Railway ... 443
Lamps, Street Series ... 442, 443
Lamps, Train Lighting ... 442, 445
Lamps, Tubular ... 444
Lamps, White ... 441
Miniature Lamps, Westinghouse ... 449
Measuring Reel, Wire, Waldman ... 416
Melting Ladles ... 273
Pots ... 273
Mephisto Auger Bits ... 417
Expansive Bits ... 417
Messenger Hangers, Hubbard ... 354
Metal Molding Fittings ... 30, 31
Molding, National ... 30, 31
Molding Punch ... 31
Reflectors, Hubbell ... 466
Shades, Faries ... 465
Meter Books, Austin ... 316
Protective Trims, Entrance Switch, Trumbull ... 197
Sealing Tools, Austin ... 316
Seals, Austin ... 316
Service Switches, Westinghouse ... 184–187
Metering Equipment, Outdoor, Westinghouse ... 317
Meters, Pocket, Sterling ... 458
Watthour, Westinghouse ... 310–315
Mica, Cold Moulding, Westinghouse ... 265
Electrical ... 272
Hot Moulding, Westinghouse ... 271
India ... 272
Sheet, Westinghouse ... 271
Mica Tubes, Westinghouse ... 271
Micarta Plate, Westinghouse ... 269, 270
Pump Washers ... 270
Rods, Westinghouse ... 270
Tubing, Westinghouse ... 270
Midget Flashers, Skedoodle ... 457
Separable Connectors ... 461
Toy Transformers ... 259
Mill Board, Asbestos ... 264
Milliammeters, Switchboard, Westinghouse ... 319
Switchboard, Weston ... 326, 327
Millivoltmeters, Switchboard, Weston ... 326, 327
Mine Brackets, Peirce ... 355
Buzzers, Benjamin ... 240
Clamps, Westinghouse ... 385
Conduits ... 75
Locomotive Headlights, Westinghouse ... 491, 492
Signal Switch ... 75
Suspensions, Westinghouse ... 384
Telephones, Kellogg ... 254
Miniature Lamps, Mazda, Westinghouse ... 449
Receptacles, Bryant ... 110
Sockets, Bryant ... 110
Mining Machine Cable ... 12–16
Minneapolis Payout Reel ... 416
Reel and Meter ... 416
Mixers, Drink, Hamilton Beach ... 546
Mogul Base Lamp Receptacles, Bryant ... 109
Base Sockets, Benjamin ... 155
Base Lamp Sockets, Bryant ... 109
Sockets, P & S ... 79
Moisture-Proof Fixtures, Benjamin ... 478
Molding, Metal, National ... 30, 31
Momentary Contact Switches, H & H ... 137, 138
Monitor Bells, Edwards ... 229
Bells, PR ... 230
Lamp Guards ... 464
Motor Attachment Plugs, Hubbell ... 147
Belting ... 286

Page

Motor Brush Assortments, Pyramid 292
Control Switches, H & H 136
Controllers, Westinghouse 297, 298
Generators, Arc-Welding, Westinghouse 287
Generators, Westinghouse 282
Plugs, Hubbell 147
Reversing Switches, Trumbull 198
Starters, Safety, Westinghouse 202
Starters, Westinghouse 194, 200, 201, 296–298
Starting Switch Overload Relay, Trumbull 199
Starting Switches, Trumbull 198, 199
Starting Switches, Westinghouse 203
Motorless Flashers 457
Flashers, Automatic, Belts 457
Motors, Lathe, Jewelers,' Hamilton Beach 544
Machine, Sewing, Hamilton Beach 544
Sew, Westinghouse 543
Westinghouse 274–281
Multi-Gap Lightning Arresters, Westinghouse 344
Multiple Streethood Parts, Cutter 499
Streethoods, Cutter 498, 499

N

Nail-It Insulators, Porcelain 396, 397
Nails, Insulated, Perfection 261
Pole Dating, Hubbard 352
National Cable Boxes 47
Carbon Brushes 293–295
Metal Molding 30, 31
Neverslip Cable Hangers, Blackburn's 378
New Easy Wire Cutters 419
Wrinkle Line, Bryant 97–99
Niagrite Tape 262
Nichrome Resistance Wire 19
Noark Non-Indicating Fuses 167
No-Bolt Studs, Kwikon 21
Nokorode Soldering Paste 273
Soldering Salts 273
Non-Indicating Fuses, Noark 167
Non-Metallic Flexible Conduit 25
Norbitt Conduletto Cord Rosettes 65
Conduletto Fixture Rosettes 65
Conduletto Receptacles 65
Nutmeg Push Button Switches, H & H 137, 138
Nuts, Eye, Hubbard 350
Nye Pipe Vises 418

O

Oamco Reflectors 481
Oblique Cutting Pliers 404
Obround Condulet Bodies 48–50
Condulet Covers 51–54
Condulet Gaskets 55
Conduletto Cord Rosettes 55
Conduletto Fixture Rosettes 55
Conduletto Receptacles 55
Office Wire, Damp-Proof 16
Oil, Insulating, Westinghouse 268
Lubricating, Westinghouse 268
Oil Circuit Breakers, Westinghouse 300–309
Lamp Attachments, Hubbell 152
Okonite Rubber Tape 263
Openers, Door, Edwards 255
Oshkosh Cant Hook Handles 415
Cant Hooks 410
Carrying Hooks 410
Digging Bars 411
Loy Handles 415
Loy Tools 411
Peavy Handles 415
Peavies 410

Page

Oshkosh Pike Pole Handles 411
Pike Poles 410
Pole Supports 415
Post Hole Shovels 412
Post Hole Spoons 412
Reels 415
Tamping Bar Handles 415
Tamping Bars 411
Tree Trimmer Handles 412
Tree Trimmers 412
Outdoor Metering Equipment, Westinghouse 317
Outfits, Tree, Christmas 454
Outlet Box Cover, Benjamin 471
Box Covers, Union 34–39
Box Extension Rings, Union 39
Box Lamp Guard, Benjamin 476
Box Receptacles, Bryant 101, 105, 106
Box Receptacles, P & S 87, 88, 92
Boxes, Union 34, 35, 37, 38, 40–42
Plates, Convenience, Hubbell 146
Outlets, Convenience, Hubbell 146
Floor, Fullman 32, 33
Ovens, Bake, Westinghouse 532
Overload Relays, Safety Switch, Trumbull 199

P

P & B Insulating Tapes 263
PR Eclipse Bells 230
Eclipse Buzzers 230
Giant Steel-Clad Gongs 231
Iron Box Bells 230
Iron Box Buzzers 230
Marlo Bells 230
Marlo Buzzers 230
Monitor Bells 230
Watchcase Buzzers 230
XXX Bells 230
XXX Buzzers 230
P & S Candelabra Adapters 86
Candelabra Sockets 86
Candle Sockets 86
Canopy Rosettes 89
Canopy Switches 85
Ceiling Buttons 90
Ceiling Light Receptacles 93
Fixture Chain 83
Fixture Loops 89
Fixture Sockets 94
Interchangeable Socket Parts 76, 77
Mogul Sockets 79
Outlet Box Receptacles 87, 88, 92
Pendent Switches 85
Porcelain Receptacles 91
Porcelain Rosettes 90
Porcelain Socket Parts 78
Porcelain Switch Bases 93
Ready Wired Sockets 79
Receptacles 89
Reflector Sockets 93
Shade Holders 83
Shurlok Keys 80
Shurlok Receptacles 80
Shurlok Sockets 80
Sign Receptacles 91–93
Socket Accessories 81, 82
Socket Wrenches 83
Socket Loops 89
Special Finishes 82
Weatherproof Receptacles 93
Weatherproof Sockets 94
Wood Molding Receptacles 91
Packing House Cord 13

Page

Pads, Warming, Westinghouse 524

Panel Board Switches, Perkins 132
Boards, Benjamin-Starrett 218–222
Boards, Residence, Benjamin-Starrett 222
Boards, Westinghouse 212–217
Switches, Bryant 173
Switches, Perkins 172

Panels, Control, Westinghouse 516

Paper, Asbestos 264
Instrument, Recording 316

Paper Pulleys, Rockwood 285
Tape, Asbestos, Fibroid, J-M 262

Papers, Insulating, Westinghouse 266

Parabola Reflectors, Faries 465
Reflectors, Hubbell 466

Paragon Ground Cones 379

Parallel Blade Adapter, Benjamin 156
Lamp Cord 15

Paste, Soldering, Allen 273
Soldering, Nokorode 273

Patterson Tank Indicators 234

Payout Reel, Minneapolis 416
Reels 415

Pear Push Buttons 225

Peavy Handles, Oshkosh 415

Peavies, Oshkosh 410

Peirce Angle Clamps 359
Bracket Corner Irons 373
Break Arm Brackets 371
Broad Base Steel Pins 357
Clamp Pins 359
Cross-Arm Brackets 371, 372
Cross-Arm Clevises 368
Cross-Arm Straps 359
Dead Ending Clevises 368
Dead Ending Straps 369
Detachable Pole Step 352
Distributing Brackets 372
Distributing Knob Racks 370
Drive Points 349
Drop Forged Clevises 368
Extension Brackets 369
Fire Alarm Fixtures 365
Forged Brick Drive Brackets 374
Forged Hook Brackets 374
Forged Steel Pins 357, 358, 362, 363
Fuse Block Clamps 359
Hammer Drills 376
Hand Chucks 376
Hi-Ten Pole Extensions 360
Insulated Spreader Racks 370
Insulated Tree Brackets 374
Insulator Pins 357
Knob Fixtures 375
Lead Sleeve Expansion Bolts 376
Light House Racks 370
Mine Brackets 355
Pipe Clamps 359
Pole Bands 369
Pole Extensions 364
Pole Seats 355
Pole Struts 352
Pole Top Brackets 356
Pole Top Pins 361
Presteel Cross-Arm Saddles 360
Presteel Insulator Pins 358
Presteel Screw Pin Brackets 358
Prussian Hook Brackets 374
Ridge Iron Brackets 368
Secondary Rack Insulators 369
Secondary Racks 369
Side Clamp Pins 359

Page

Peirce Sign Hangers 355
Single Pole Brackets 371
Suspension Telephone Brackets 371
Swinging Knob Fixtures 370
Transposition Brackets 374
Underground Cable Racks 355
Wall Brackets 373, 374
Washers 360
Wire Holders 370

Pencil Zincs 460

Pendants, Luxsolite, Westinghouse 502
Socket, Luminous, Bryant 103

Pendent Lamp Guards, Benjamin 476
Lantern, Cutter 511
Switches, C-H 157
Switches, Perkins 132
Switches, P & S 85

Percolators, Coffee, Westinghouse 521, 522

Perfection Insulated Nails 261

Perkins Electrolier Switches 127
Flush Rotary Switches 123
Panel Board Switches 132
Panel Switches 172
Pendent Switches 132
Pull Switches 131
Push Switches 120, 121
Self-Restoring Door Switches 112, 120
Snap Switches 127, 128
Surface Switches 127, 128
Switch Handles 130

Pike Pole Handles, Oshkosh 411
Poles, Oshkosh 410

Pin Thimbles, Lead Thread 360

Pins, Clamp, Peirce 359
Dowel, Conduit, Clay, Hubbard 355
Iron, Malleable 377
Insulator 384
Insulator, Hubbard 357
Insulator, Peirce 357
Pole Top, Peirce 361
Presteel, Insulator, Peirce 358
Side Clamp, Peirce 359
Steel, Broad Base, Peirce 357
Steel, Forged, Peirce 357, 358, 362, 363
Transposition 384
Wood 384
Wood Top, Hubbard 357

Pipe Benders, Martin 22
Clamps, Peirce 359
Cutters, Saunders 418
Cutting Devices, Toledo 420
Extension Couplings, Westinghouse 385
Stems, Benjamin 480
Straps, Tinned 21
Threading Devices, Toledo 420
Vises, Adjustable, Jones 414
Vises, Crane 418
Vises, Nye 418
Vises, Vulcan 418

Pipes, Ground, Hubbard 349

Plates, Bell Push, Bryant 126
Blank, Bryant 126
Bull's Eye, Bryant 117
Combination, Bryant 115
Combination, H & H 143, 144
Convenience Outlet, Hubbell 146
Corner, Streethood, Cutter 500
Ground, Hubbard 349
Hot, Westinghouse 526
Hub, Conduit 68, 73
Micarta, Westinghouse 269, 270
Pole, Streethood, Cutter 500

Page

Plates, Push, Bell, Bryant ... 125
Push Button, Holtzer-Cabot ... 242
Receptacle, Bull's Eye, H & H ... 143
Receptacle, Flush, Bryant ... 114, 115
Strain, Hubbard ... 350
Switch, Porcelain ... 427
Switch, Push, Bryant ... 122
Switch, Push Button, H & H ... 142
Switch, Tumbler, Bryant ... 125
Switch, Tumbler, H & H ... 142
Telephone, Bryant ... 125
Plier Pockets, Klein ... 408
Pliers, End Cutting ... 404
Gas ... 418
Klein ... 404, 405
Long Duck Bill ... 404
Long Needle Nose ... 404
Long Nose ... 404
Oblique Cutting ... 404
Side Cutting ... 404
Side Cutting, Diamond ... 404
Slip Joint ... 405, 418
Plug Caps, Interchangeable, Hubbell ... 145
Fuse Casings, Economy ... 165
Fuse Cutout Bases, Bryant ... 174
Fuses, Clearsite ... 165
Fuses, Edison ... 165
Fuses, Refillable, H & H ... 165
Fuses, Renewable, Economy ... 165
Receptacle Conduletes ... 66–68
Receptacle Housings, Condulet ... 60, 65, 73
Sockets, Benjamin ... 153, 154
Sockets, Hemco ... 153
Plugs, Attachment, Benjamin ... 156
Attachment, Bryant ... 112
Attachment, Hubbell ... 145, 147
Attachment, Motor, Hubbell ... 147
Attachment, Separable, Hubbell ... 148
Attachment, Swivel, Benjamin ... 156
Charging, Westinghouse ... 160
Connector, Smith ... 157
Flashing, Skedoodle ... 457
Fuse, Edison ... 165
Fuse, Refillable, H & H ... 165
Marine, Bryant ... 112
Motor, Hubbell ... 147
Railway, Bryant ... 112
Receptacle, Condulet ... 60, 66–68
Westinghouse ... 159
Pocket Levels ... 416
Meters, Sterling ... 458
Rules, Steel, Folding ... 417
Tool Cases, Klein ... 408
Pockets, Plier, Klein ... 408
Stage, Kliegl ... 158
Points, Drive, Peirce ... 349
Polarized Cord Connectors, Hubbell ... 148
Pole Balconies, Hubbard ... 355
Bands, Peirce ... 369
Bands, Hubbard ... 356
Brackets ... 384
Brackets, Single, Peirce ... 371
Counters ... 416
Dating Nails, Hubbard ... 352
Extensions, Hi-Ten, Peirce ... 360
Extensions, Peirce ... 364
Fittings, Benjamin ... 480
Handles, Pike, Oshkosh ... 411
Locks, Cutter ... 505
Plates, Streethood, Cutter ... 500
Pulleys, Swivel, Westinghouse ... 490
Seats, Peirce ... 355
Steps ... 384
Steps, Detachable, Peirce ... 352
Steps, Hubbard ... 352
Steps, Wood ... 384
Struts, Peirce ... 352

Page

Pole Supports, Oshkosh ... 415
Top Brackets, Peirce ... 356
Top Pins, Peirce ... 361
Top Switches, EEE ... 205
Poles, Cedar ... 346, 347
Pike, Oshkosh ... 410
Polishing Motors, Westinghouse ... 280
Porcelain Adapters, Hubbell ... 148
Caps, Hubbell ... 148
Clamp Bushings ... 157
Cleats ... 397
Enameled Steel Reflectors, Benjamin, ... 469–471, 473–475
Enameled Switch Plates ... 427
Grip-It Insulators ... 396
Half Shades, Green ... 434
Heads, Universal, Cutter ... 497
Insulators ... 395–397
Insulators, Westinghouse ... 398–401
Nail-It Insulators ... 396, 397
Receptacles, P & S ... 91
Rosettes, P & S ... 90
Screw-It Insulators ... 397
Split Insulators ... 396
Switch Bases, P & S ... 93
Telephone Knobs ... 397
Tubes ... 394
Portable Clusters, Benjamin ... 465
Cord, Duracord ... 16
Cord, Reinforced ... 15
Cords, Rubber Clad ... 14
Drills, B & D ... 289–291
Electric Grinders, Duntley ... 391
Grinders, B & D ... 291
Grinders, Hamilton Beach ... 546
Lamp Globes, Vaporproof ... 71
Lamp Guards ... 464
Lamp Guards, Vaporproof ... 71
Lamps, Benjamin ... 476
Lamps, ESRoberts ... 437–440
Lamps, Holdfast, Matthews ... 462
Lamps, Vaporproof ... 70, 71
Lamps, Vaporproof, Benjamin ... 476
Portables, Adjustable, Faries ... 436
Flexible Arm, Faries ... 436
Post Hole Shovels, Oshkosh ... 412
Hole Spoons, Oshkosh ... 412
Tops, Single-Light, Cutter ... 511
Posts, Single-Light, Cutter ... 507–510
Pothead Supports, Hubbard ... 354
Wire ... 7
Potheads, Cutter ... 512
G & W ... 208
Pots, Fire, C & L ... 422
Glue, Wallace ... 533
Glue, Westinghouse ... 533
Melting ... 273
Solder, Westinghouse ... 533
Pouches, Leather, Klein ... 408
Pressure Regulators, C-H ... 299
Presteel Cross-Arm Saddles, Peirce ... 360
Insulator Pins, Peirce ... 358
Screw Pin Brackets, Peirce ... 358
Projectors, Floodlight, Crouse-Hinds ... 519
Floodlight, X-Ray ... 520
Floodlighting, Westinghouse ... 491
Protective Fuses, Instrument ... 165
Prussian Hook Brackets, Peirce ... 374
Pull Receptacles, Bryant ... 107
Socket Attachments, Hubbell ... 152
Switches, Perkins ... 131
Pullers, Slack, Matthews ... 379
Pulley Sockets, Westinghouse ... 489
Pulleys, Paper, Rockwood ... 285
Pole, Swivel, Westinghouse ... 490
Street Lighting, Cutter ... 504

Page

Pulling-In Irons, Hubbard ... 355
Pump Washers, Micarta ... 270
Punch, Metal Molding ... 31
Push and Bell, Return-Call, Edwards ... 226
Button Plates, Holtzer-Cabot ... 242
Button Switch Plates, H & H ... 142
Button Switches, H & H ... 137, 138
Button Switches, Nutmeg, H & H ... 137, 138
Buttons, Ansonia ... 224, 225
Buttons, Bronx ... 226
Buttons, Car ... 225
Buttons, Conduit ... 227
Buttons, Desk ... 225
Buttons, Desk, Altman ... 226
Buttons, Dixie Jr. ... 227
Buttons, Edwards ... 227
Buttons, Floor ... 227
Buttons, High Voltage ... 227
Buttons, Midget Jr. ... 227
Buttons, Pear ... 225
Buttons, Table Clamp ... 225
Buttons, Wood ... 225
Plates, Bell, Bryant ... 125, 126
Switch Plates, Bryant ... 122
Switches, Bryant ... 122
Switches, Perkins ... 120, 121
Pyle-National Turbo-Generators ... 283
Pyramid Brush Assortments ... 292

Q

Q-Ray Portable, ESRobert ... 440
Quick Break Attachments, Trumbull ... 183

R

Racks, Cable, Underground, Peirce ... 355
Distributing Knob, Peirce ... 370
Insulated, Fletcher ... 402
Insulated Spreader, Peirce ... 370
Light House, Peirce ... 370
Secondary, Peirce ... 369
Radiators, Cozy-Glow, Westinghouse ... 525
Radio Batteries, Eveready ... 459
Luminous Push Switches, H & H ... 137
Rail Bonds, Westinghouse ... 389, 390
Drills, Electric, Duntley ... 391
Railway Plugs and Receptacles, Bryant ... 112
Range Accessories, Westinghouse ... 531
Switches, Bryant ... 129, 130
Ranges, Westinghouse ... 528–531
Ratchet Braces ... 417
Drills, Yankee ... 414
Screwdrivers, Yankee ... 413
Reacto Electric Horns, Holtzer-Cabot ... 237
Ready Wired Sockets, P & S ... 79
Real Connector Plug ... 157
Cord and Plug ... 157
Reamers, Conduit, Lightning ... 418
Receptacle Boxes, Union ... 47
Conduit Covers ... 62–64
Conduits, Plug ... 66–68
Housings, Plug, Conduit ... 60, 63, 73
Plates, Bull's Eye, H & H ... 143
Plates, Flush, Bryant ... 114, 115
Plugs, Conduit ... 60, 66–68
Receptacles, Bayonet Shell, P & S ... 89
Bull's Eye, Bryant ... 118
Ceiling Light, P & S ... 93
Charging, Westinghouse ... 160
Cleat, Bryant ... 105, 106
Combination, Bryant ... 114
Conduletto, Norbitt ... 65
Conduletto, Obround ... 55
Disappearing Door, Bryant ... 116
Flush, Bryant ... 113, 114, 116, 118

Page

Receptacles, Flush, H & H ... 139
Flush, Hubbell ... 147
Marine, Bryant ... 112
Miniature, Bryant ... 110
Mogul Base, Bryant ... 109
Outlet Box, Bryant ... 101, 105, 106
Outlet Box, P & S ... 87, 88, 92
Pilot Type, Bryant ... 114
Porcelain, P & S ... 91
Pull, Bryant ... 107
Railway, Bryant ... 112
Shurlok, P & S ... 80
Sign, Bryant ... 105
Sign, P & S ... 91–93
Weatherproof, P & S ... 93
Westinghouse ... 159
Wood Molding, P & S ... 91
Recording Instrument Paper ... 316
Instruments, Westinghouse ... 324
Rectangular Separable Connectors ... 461
Recti Bells, Edwards ... 228
Rectifier Outfits, Cooper-Hewitt, Westinghouse, ... 337, 338
Rectigon Battery Chargers, Westinghouse ... 339, 340
Red Spot Hangers, Wakefield ... 428
Reducers, Conduit ... 74
Knockout, Rohn ... 22
Socket, Benjamin ... 154
Socket, Bryant ... 103
Reed's Glass Etching Ink ... 451
Reel, Measuring, Wire, Waldman ... 416
Payout, Minneapolis ... 416
Reel and Meter, Wire ... 416
Reels, Barrow ... 415
Extension, Automatic, Autex ... 84
Folding Take Up ... 415
Oshkosh ... 415
Payout ... 415
Western Union ... 415
Reflector Fittings, Benjamin ... 471
Guards, Benjamin ... 476
Holders, Conduletc ... 70
Lamp Guards ... 463
Socket-Fixtures, Westinghouse ... 483
Sockets, Benjamin ... 469
Sockets, Bryant ... 109
Sockets, P & S ... 93
Sockets, Westinghouse ... 484
Reflectors, Elliptical Angle, Benjamin ... 470
Glass ... 434
Half, Faries ... 465
Half, Hubbell ... 466
Heavy Duty, Benjamin ... 471
Hood, X-Ray ... 482
Jove, X-Ray ... 482
Jupiter, X-Ray ... 482
Metal, Faries ... 465
Metal, Hubbell ... 466
Oamco ... 481
Parabola, Faries ... 465
Parabola, Hubbell ... 466
Portable, Flood-Ray, X-Ray ... 481
Portable, Hippo, X-Ray ... 481
RLM, Benjamin ... 469, 472
Roundhouse, Crouse-Hinds ... 520
Scoop, X-Ray ... 482
Sewing Machine, Benjamin ... 475
Sewing Machine, Westinghouse ... 487
Shade Holder, Benjamin ... 473, 474
Show Case, Benjamin ... 475, 477
Show Window, X-Ray ... 481, 482
Steel, Porcelain Enameled, Benjamin, ... 469–471, 473–475
Tin, Oamco ... 481
Viaduct, Benjamin ... 471
Westinghouse ... 485–487
Window, Benjamin ... 475

Page

Regulators, Moving Coil, Westinghouse.....516–518
Pressure, C-H 299
Speed, Fan, Wirt 454
Speed, Vibrator, Wirt 454
Reinforced Portable Cord 15
Reinforcing Link, Hubbard 354
Relays, Overload, Safety Switch 199
Telecode, Benjamin 240
Renewable Plug Fuses, Economy 165
Residence Panel Boards, Benjamin-Starrett 222
Resistance Wire, Nichrome 19
Return-Call Push and Bell, Edwards 226
Reversible Ventura Fans, American Blower 542
Ribbon, Fuse, Westinghouse 165
Ridge Iron Brackets, Peirce 368
Irons, Hubbard 368
Rigid Steel Conduit 26
Ringers, Bell, Westinghouse 260
Ringing Transformers, Bell, Jefferson 259
Transformers, Bell, Killark 260
Rings, Extension, Outlet Box, Union 39
Socket, Bryant 103
Steel 22
Rittenhouse Conduit Bender 23
Rockwood Paper Pulleys 285
Rods, Ground, Hubbard 285
Micarta, Westinghouse 349
Vulcanized 276
Rohn Knockout Reducer 272
Roll-Board, Asbestos 22
Rollers, Cable, Klein 264
Rope, Trimmer's 406
Rope Clamps, Cutter 505
Cleats, Cutter 505
Rosettes, Canopy, P & S 89
Cord, Conduletto, Norbitt 65
Cord, Conduletto, Obround 55
Fixture, Conduletto, Norbitt 65
Fixture, Conduletto, Obround 55
Porcelain, P & S 90
Rotary Switches, Flush, Perkins 123
Roundhouse Reflectors, Crouse-Hinds 520
Rubber Clad Cables 12, 14
Clad Portable Cords 14
Covered Cable 7
Covered Telephone Wire 7
Covered Wire 6
Gloves, Linemen's 416
Insulated Cables, Special 13
Insulated Cords, Special 13
Insulated Lead Encased Cables 10
Motor Belting 286
Tape, Okonite 263
Rules, Boxwood 417
Caliper, Boxwood 417
Pocket, Steel, Folding 417
Rural Line Equipment, EEE 206

S

Saddles, Cross-Arm, Presteel, Peirce 360
Safety Motor Starters, Westinghouse 202
Steel Taped Cables 11
Straps, Klein 408
Switch Conduits 68
Switches, Trumbull 191–193, 195, 196, 198, 199
Safesteel Armored Conductors, Austin 24
Flexible Conduit, Austin 24
Sal Ammoniac, Imported 460
Salts, Soldering, Allen 273
Soldering, Nokorode 273
Samson Batteries 460
Spot Cord 17
Saunders Pipe Cutters 418
Saws 419
Schoolyard Gongs, Holtzer-Cabot 236

Page

Schwarze Enclosed Type Vibrating Bells 236
Single Stroke Bells 236
Scoop Reflectors, X-Ray 482
Screw Anchors, Diamond 382
Compressors, Westinghouse 391
Drivers 413
Drivers, Electric, B & D 292
Drivers, Ratchet, Yankee 413
Drivers, Yankee 413
Pin Brackets, Presteel, Peirce 358
Wrenches, Lag, Klein 406
Screw-It Insulators, Porcelain 397
Screws, Lag 22
Lag, Hubbard 351
Wood, Brass 380
Wood, Iron 380
Scrulix Anchors, Matthews 378
Eyenuts, Matthews 379
Sealing Tools, Meter, Austin 316
Seals, Meter, Austin 316
Seals, Pole, Peirce 355
Sechrist Lighting Fixtures 429–433
Secondary Rack Insulators, Peirce 369
Racks, Peirce 369
Section Switches, Line, Westinghouse 387
Sectional Switch Boxes, Union 46
Separable Attachment Plugs, Hubbell 148
Connectors, Midget 461
Connectors, Rectangular 461
Series Streethood Parts, Suspension, Cutter 495
Streethoods, Standard, Cutter 494
Service Switches, Universal, Trumbull 188–190
Sew Motors, Westinghouse 543
Sewing Machine Attachments, Hamilton Beach 544
Machine Motors, Hamilton Beach 544
Machine Reflectors, Benjamin 475
Machine Reflectors, Westinghouse 487
Machines, Free-Westinghouse 547
Shade Holder Reflectors, Benjamin 473, 474
Holders, Acme 84
Holders, Benjamin 155
Holders, Bryant 84
Holders, Hubbell 84
Holders, P & S 83
Holders, Weatherproof 84
Shades, Glass 434
Half, Porcelain, Green 434
Lamp, Holdfast, Matthews 462
Metal, Faries 465
Sheet Mica, Westinghouse 271
Sheets, Vulcanized 272
Sherman Connectors 164
Fixture Connectors 164
Soldering Lugs 164
Shields, Cable Duct, Hubbard 355
Expansion, Diamond 382
Shims, Guy, Hubbard 350
Shoe Dryers, Hamilton Beach 546
Shovels, Post Hole, Oshkosh 412
Show Case Reflectors, Benjamin 475, 477
Window Floodlights, X-Ray 481
Window Reflectors, X-Ray 482
Shunts, Switchboard, Westinghouse 321
Shurlok Keys, P & S 80
Receptacles, P & S 80
Sockets, P & S 80
Side Clamp Pins, Peirce 350
Cutting Pliers 404
Cutting Pliers, Diamond 404
Sign Flashers, Betts 456
Hangers, Peirce 355
Lighting Transformers, Jefferson 260
Receptacles, Bryant 106
Receptacles, P & S 91–93
Signal Gongs, Faraday 235
Switch, Mine 75
System, Hospital, Bryant 123
System, Hospital, Holtzer-Cabot 256, 257

	Page
Signaling Apparatus, Holtzer-Cabot	242
Signalite Current Taps	148
Signals, Alarm, Fire, Benjamin	240
Industrial, Benjamin	239
Silk Covered Magnet Wire	18
Simplex Jacks	409
Single Knob Fixtures, Peirce	375
Pole Brackets, Peirce	371
Stroke Bells, Edwards	228
Stroke Bells, Schwarze	236
Sirens, Federal	238
Sirocco Ventilating Units, American Blower	541
Sizes of Conduit, Standard	20
Skedoodle Flashers	457
Flashing Plugs	457
Skeleton Bells, Economy, Edwards	229
Bells, Ekla	232
Bells, Faraday	232
Slack Puller, Matthews	379
Slate, Electrical	264
Sleeve Expansion Bolts, Lead, Peirce	376
Twisters, DI-Stock, Klein	405
Sleeves, Splicing, Westinghouse	386
Sleeving, Cotton, Westinghouse	266
Slick Tools, Oshkosh	411
Slip Joint Pliers	405
Slow Burning Wire	8
Smith Appliance Cords and Plugs	157
Connector Plugs	157
Snap Switches, Bryant	126
Switches, H & H	133–136
Switches, Perkins	127, 128
Snips, Electricians'	419
Socket Accessories, Bryant	103
Accessories, P & S	81, 82
Adapters, Bryant	103
Attachments, Pull, Hubbell	152
Balls, Bryant	103
Bases, Fluto, P & S	77
Bases, New Wrinkle, Bryant	99
Bases, Porcelain, Bryant	104
Bases, Porcelain, P & S	78
Bodies, Fluto, P & S	76
Bodies, Flutoiler, P & S	77
Bodies, New Wrinkle, Bryant	97
Bodies, Porcelain, Bryant	104
Bodies, Porcelain, P & S	78
Bodies, Wrinklet, Bryant	100
Bushings	84
Caps, Fluto, P & S	76
Caps, New Wrinkle, Bryant	98
Caps, Porcelain, Bryant	104
Caps, Porcelain, P & S	78
Caps, Wrinklet, Bryant	100
Chain Acorns, Hubbell	152
Chain Guides, P & S	81
Chains, Decorative, Bryant	107
Extenders, Hubbell	152
Extensions, Benjamin	154
Fixtures, Luminous Top, Westinghouse	487
Handles, Bryant	103
Loops, P & S	80
Parts, Interchangeable, P & S	76, 77
Pendants, Luminous, Bryant	103
Reducers, Benjamin	154
Reducers, Bryant	103
Rings, Bryant	103
Splicing Links, Bryant	103
Tassels, Bryant	107
Wrench, Bryant	103
Wrenches, P & S	83
Sockets, Bayonet Shell, Bryant	101
Benco, Benjamin	155
Brass Key, P & S	82
Brass Shell, Bryant	109
Sockets, Candelabra, Bryant	110
Candelabra, P & S	86
Candle, P & S	86
Decorative Lighting, Bryant	107
Dubl-Duty, Bryant	100
Extension Chain Guides, P & S	81
Extra Long Key, P & S	82
Fixture, P & S	94
Fluto, P & S	76
Insulated Chain, P & S	81
Lamp Guard	464
Miniature, Bryant	110
Mogul Base, Benjamin	155
Mogul Base, Bryant	109
Mogul, P & S	79
New Wrinkle, Bryant	100
Plug, Benjamin	153, 154
Plug, Hemco	153
Pulley, Westinghouse	489
Ready Wired, P & S	79
Reflector, Benjamin	469
Reflector, Bryant	109
Reflector, P & S	93
Reflector, Westinghouse	484
Shurlok, P & S	80
Special, Bryant	95
Streethood, Cutter	497
Weatherproof, Bryant	108
Weatherproof, P & S	94
Wrinklet, Bryant	100
Solder, Flux, Kester	273
Half and Half	273
Wiping	273
Wire	273
Solder Pots, Westinghouse	533
Soldering Fluxes, Westinghouse	268
Irons, American Beauty	534
Lugs, Sherman	164
Paste, Allen	273
Paste, Nokorode	273
Salts, Allen	273
Salts, Nokorode	273
Sticks, Allen	273
Solderless Connectors, Frankel	160–163
Sol-Lux Lighting Fixtures, Westinghouse	423, 424
Space Heaters, Westinghouse	532
Span Wire	17
Spartan Line, Bryant	113, 114
Speed Indicators	416
Regulators, Fan, Wirt	454
Regulators, Vibrator, Wirt	454
Splicing Clamps, Klein	405
Compounds, J-M	262
Compounds, Westinghouse	263
Sleeves, Westinghouse	386
Split Insulators, Porcelain	396
Spoons, Post Hole, Oshkosh	412
Spot Cord, Samson	17
Spotlights, Show Window, X-Ray	481
Springs, Burglar Alarm, Edwards	227
Door, Burglar Alarm	227
Window, Burglar Alarm	227
Squeeze Connectors, Austin	24, 25
Stage Cable	13
Connectors, Kliegl	158
Floor Boxes, Westinghouse	159
Pockets, Kliegl	158
Standard Lamp Guards	464
Series Streethoods, Cutter	494
Sizes of Conduit	20
Stands, Vise, Martin	22
Staples, Insulated, Blake	261
Starters, Motor, Safety, Westinghouse	202
Motor, Westinghouse	194, 200, 201, 296–298
Staysalite Linemen's Torch	408
Steel Clad Gongs, Giant, PR	231

Page

Steel Clad Heaters, Westinghouse 532
Conduit, Rigid 20
Cross-Arms, Hubbard 364
Pins, Forged, Peirce 357, 358, 362, 363
Pocket Rules, Folding 417
Reflectors, Porcelain Enameled, Benjamin, 469–471, 473–475
Rings 22
Suspension Bars 22
Taped Cables, Safety 11
Tapes 417
Wire Strand 17
Stems, Fixture, EDSH 435
Pipe, Benjamin 480
Pole, Hubbard 352
Pole, Wood 384
Sterling Meters 458
Sticks, Soldering, Allen 273
Stillson Wrenches 419
Storage Batteries 260
Stoves, Disc, Westinghouse 526
Glower, American Beauty 534
Table, Armstrong 535
Table, Westinghouse 524
Strain Arms, Cutter 504
Insulator Clevises, Hubbard 368
Insulators, Porcelain, Westinghouse 398, 401
Insulators, Westinghouse 389
Insulators, Wood, Westinghouse 388
Plates, Hubbard 350
Strand, Wire, Steel 17
Strap and Belt, Safety, Klein 407
Straps, Clamp, Suspension, Hubbard 354
Climbers, Eastern 408
Conduit, Hubbard 354
Cross-Arm, Peirce 359
Dead-Ending, Peirce 369
Safety, Klein 408
Street Lighting Equipment, Cutter 504, 505
Lighting Equipment, Westinghouse 493
Lighting Posts, Cutter 507–510
Streethood Bracket Parts, Cutter 500
Brackets, Cutter 496, 500
Parts, Multiple, Cutter 499
Parts, Suspension Series, Cutter 495
Sockets, Cutter 497
Streethoods, Inverted Cone, Cutter 501
Multiple, Cutter 498, 499
Series, Standard, Cutter 494
Strip, Fuse, Union 166
Struts, Pole, Peirce 352
Studs, Fixture, Hickey 21
No-Bolt, Kwikon 21
Sugars and Creamers, Westinghouse 522
Sunshine Vacuum Cleaners 535
Superior Fish Wire 23
Supports, Fixture, EDSH 435
Pole, Oshkosh 415
Pothead, Hubbard 354
Switch Box, Kruse 22
Surelite Ground Clamp 21
Surface Switches, Bryant 126
Switches, H & H 133–135
Switches, Perkins 127, 128
Suspension Bars, Steel 22
Clamp Straps, Hubbard 354
Eyes, Westinghouse 490
Fittings, Benjamin 480
Hangers, Westinghouse 490
Insulator Equipment, Hubbard-Belcher 367
Series Streethood Parts, Cutter 495
Telephone Brackets, Peirce 371
Suspensions, Chain, Benjamin 480
Mine, Westinghouse 384
Trolley, Westinghouse 383, 384
Swinging Knob Fixtures, Peirce 370

Page

Switch Bases, Porcelain, P & S 93
Bodies, Fluto, P & S 76
Bodies, New Wrinkle, Bryant 97, 98
Box Clamps, Union 45
Box Supports, Kruse 22
Boxes, Sectional, Union 43–46
Boxes, Solid, Union 45
Boxes, Union 42, 47
Cabinets 209, 211
Conduit Covers 62–64
Conduits, Safety 68
Handles, Perkins 130
Overload Relays, Safety 199
Plates, Porcelain 427
Plates, Push Button, H & H 142
Plates, Push, Bryant 122
Plates, Tumbler, Bryant 125
Plates, Tumbler, H & H 142
Wiring Diagrams, H & H 140, 141
Switchboard Cable, Flexible 7
Instruments, Westinghouse 319, 320, 322, 323
Instruments, Weston 325–327
Shunts, Westinghouse 321
Switchboards, Telephone, Kellogg 254
Westinghouse 392
Switches, Barrier, H & H 135, 136
Battery, Edwards 227
Canopy, Bryant 111
Canopy, P & S 85
Compensator, Trumbull 198
Disconnecting, EEE 207
Disconnecting, Matthews 223
Disconnecting, Westinghouse 204
Door, Self-Restoring, Perkins 112, 120
Electrolier, Perkins 127
Entrance, Bryant 173
Entrance, Trumbull 198, 199
Feed Through, C-H 157
Fixture, Levolier 107
Float, C-H 299
Knife, Baby, Bryant 178
Knife, Kappa 183
Knife, Type C, Trumbull 182, 183
Knife, Westinghouse 180, 181
Lock, Burglar Alarm 227
Meter Service, Westinghouse 184–187
Momentary Contact, H & H 137, 138
Motor Control, H & H 136
Motor Reversing, Trumbull 198
Motor Starting, Trumbull 198, 199
Motor Starting, Westinghouse 203
Panel Board, Perkins 132
Panel, Bryant 173
Panel, Perkins 172
Pendent, C-H 157
Pendent, Perkins 132
Pendent, P & S 85
Pole Top, EEE 205
Pull, Perkins 131
Push, Bryant 122
Push Button, H & H 137, 138
Push Button, Nutmeg, H & H 137, 138
Push, Perkins 120, 121
Range, Bryant 129, 130
Rotary, Flush, Perkins 123
Safety, Trumbull 191–193, 195, 196, 198, 199
Section, Line, Westinghouse 387
Service, Universal, Trumbull 188–190
Signal, Mine 75
Snap, Bryant 126
Snap, H & H 133–136
Snap, Perkins 127, 128
Surface, Bryant 126
Surface, H & H 133–135
Surface, Perkins 127, 128
Time, Westinghouse 518
Tumbler, Bryant 124, 132
Tumbler, H & H 139

Page

Swivel Attachment Plugs,Benjamin 156
Hangers, Westinghouse 490
Pole Pulleys, Westinghouse 490

T

Table Clamp Push Buttons 225
Stoves, Armstrong 535
Stoves, Westinghouse 524
Tap, Triplex, Hubbell 147
Tailor Type Sewing Machine Motor, Hamilton Beach 544
Tailor's Iron, Westinghouse 523
Tamping Bar Handles, Oshkosh 415
Bars, Oshkosh 411
Tank Indicators, Patterson 234
Tape, Armstrong, J-M 262
Armature, Westinghouse 263
Cotton, Westinghouse 267
Paper, Asbestos, J-M 262
Surgical, Westinghouse 267
Woven, J-M 262
Tapes, Cable, Westinghouse 263
Cloth, Westinghouse 265
Fabric, Westinghouse 266
Friction, Commodity, Westinghouse 263
Friction, J-M 262
Friction, Manson 263
Friction, Westinghouse 263
Insulating, P & B 263
Rubber, Okonite 262
Steel 417
Taps, Current, Hubbell 148, 152
Current, Signalite 148
Table, Triplex, Hubbell 147
Tassels, Socket, Bryant 107
Telecode Relays, Benjamin 240
Telefaults, Woodpecker, Matthews 223
Telegraph Wire, Galvanized 17
Telephone Annunciators, Couch 245
Arms, Equipoise 253
Brackets, Burns 258
Brackets, Hubbard 375
Brackets, Suspension, Peirce 371
Duplex Drop Wire 7
Interior Wires 16
Knobs, Porcelain 397
Plates, Bryant 125
Switchboard, Kellogg 254
Wire, Copper Clad 7
Wire, Galvanized 17
Wire, Rubber Covered 7
Telephones, Apartment House, Couch 250–252
Couch 243–245
Desk, Kellogg 253
Hand, Couch 252
Intercommunicating, Couch 245–247
Janitors', Couch 250, 251
Mine, Kellogg 254
Trademen's, Couch 252
Vestibule, Couch 249
Wall, Kellogg 253
Yankee, Couch 243
Test Clips, Universal 461
Testing Instruments, Weston 325
Magnetos, Holtzer-Cabot 254
Theater Cable 13
Dimmers, G-H 455, 456
Thermo-Wynk Flashers 457
Thimbles, Guy, Hubbard 349
Pin, Lead Thread 360
Threading Devices, Pipe, Toledo 420
Time Clocks, Tork 515
Switches, Westinghouse 518
Tin Reflectors, Oamco 481
Tinned Pipe Straps 21
Toasters, American Beauty 534
Turnover, Westinghouse 524

Page

Toledo Pipe Cutting Devices 420
Pipe Threading Devices 420
Tool Bags, Klein 407
Belts, Klein 407
Cases, Pocket, Klein 408
Tools, Bonding, Westinghouse 391
Loy, Oshkosh 411
Meter Sealing, Austin 316
Tops, Post, Single-Light, Cutter 511
Torches, Blow, C & L 421
Linemen's, Staysalite 408
Tork Time Clocks 515
Toy Transformers, Jefferson 259
Tradesmen's Telephones, Couch 252
Transformer Bells, Edwards 229
Fuse Blocks, Distribution, Westinghouse 171
Fuse Boxes, Distribution, Westinghouse 171
Load Indicator, Westinghouse 336
Transformers, Bell Ringing, Jefferson 259
Bell Ringing, Killark 260
Current, Westinghouse 330
Distribution, Westinghouse 333–335
Lighting, Westinghouse 518
Sign Lighting, Jefferson 260
Toy, Jefferson 259
Voltage, Westinghouse 331
Transite Asbestos Wood 264
Transposition Brackets, Hubbard 375
Brackets, Peirce 374
Pins 348
Traveler's Iron, Westinghouse 523
Tray, Serving, Westinghouse 522
Treads, Floor, Daisy 225
Tree Brackets, Insulated, Peirce 374
Outfits, Christmas 454
Trimmers, Klein 406
Trimmers, Oshkosh 412
Triangles, Mast Arm, Cutter 504
Trimmers, Tree, Klein 406
Tree, Oshkosh 412
Trimo Wrenches 419
Trims, Meter Protective, Trumbull 197
Triplex Table Tap, Hubbell 147
Trips, Door, Burglar Alarm 227
Trolley Material, Westinghouse 383–387
Wheels 386
Wire, Copper 9
Trolleylite Brackets, Cutter 513
Troublemen's Blocks, Klein 406
Trumbull Entrance Switches 195, 196
Fuse Blocks 176
Fuse Clips 177
Fuse Holders 177
Knife Switches 182, 183
Meter Protective Trims 197
Quick Break Attachments 183
Safety Switches 191–193, 195, 196, 198, 199
Universal Service Switches 188–190
Tubes, Mica, Westinghouse 271
Porcelain 394
Vulcanized 272
Tubing, Braided, Asbestos, J-M 262
Micarta 270
Tumbler Switch Plates, Bryant 125
Switch Plates, H & H 142
Switches, Bryant 124, 132
Switches, H & H 139
Tungsten Batteries, Eveready 451
Turbo-Generators, Pyle-National 283
Turnbuckles, Hubbard 356
Insulated, Westinghouse 389
Twine 267
Twisted Lamp Cord 15
Pair Interior Wire 16
Twister, Sleeve, Di-Stock, Klein 405
Two Ball Cord Adjusters 85
Bolt Guy Clamps, Matthews 379

U

Page

U Bolts, Hubbard ... 367
Underground Cable Racks, Peirce ... 355
Union Concrete Boxes ... 42
Fuse Strip ... 166
Fuse Wire ... 166
Outlet Box Covers ... 34–39
Outlet Box Extension Rings ... 39
Outlet Boxes ... 34, 35, 37, 38, 40–42
Receptacle Boxes ... 47
Sectional Switch Boxes ... 43–46
Solid Switch Boxes ... 45
Switch Box Clamps ... 45
Switch Boxes ... 42, 47
Unions, Condulet ... 74
Unit Cells, Evercady ... 451
Units, Ventilating, American Blower ... 541
Universal Battery Clips ... 461
Box Cleats, Austin ... 22
Bushings ... 25
Cord Adjusters ... 85
Porcelain Heads, Cutter ... 497
Service Switches, Trumbull ... 188–190
Test Clips ... 461
Urn Heaters, Coffee, Westinghouse ... 526
Urns, Coffee, Westinghouse ... 521, 522
Useful Information ... 548–558

V

Vacuum Cleaners, Sunshine ... 535
Vaporproof Condulets ... 69, 70
Fixtures, Condulet ... 61
Fixtuers, Benjamin ... 478, 479
Fixtures, Westinghouse ... 488, 489
Portable Hand Lamps ... 71
Portable Lamps ... 70
Portable Lamps, Benjamin ... 476
Varnished Cambric Insulated Wires and Cables ... 11
Varnishes, Air Drying, Westinghouse ... 267
Baking, Westinghouse ... 267
Ventilating Fans, American Blower ... 540, 542
Fans, Westinghouse ... 539
Units, American Blower ... 541
Units, Sirocco, American Blower ... 541
Ventura Fans, Reversible, American Blower ... 542
Vertical Braces, Hubbard ... 353
Vestibule Telephones, Couch ... 249
Viaduct Reflectors, Benjamin ... 471
Vibrating Bells, Enclosed Type, Schwarze ... 236
Vibrator Speed Regulator, Wirt ... 454
Vibrators, Massage, Hamilton Beach ... 545
Vise Stands, Martin ... 22
Vises, Pipe, Adjustable, Jones ... 414
Pipe, Crane ... 418
Pipe, Nyc ... 418
Pipe, Vulcan ... 418
Vitriol, Blue ... 460
Voltage Transformers, Westinghouse ... 331
Voltammeters, Pocket, Sterling ... 458
Voltmeters, Pocket, Sterling ... 458
Recording, Westinghouse ... 324
Switchboard, Westinghouse ... 319, 320, 323
Switchboard, Weston ... 325–327
Vulcan Pipe Vises ... 418
Vulcanized Rods ... 272
Sheets ... 272
Tubes ... 272

W

Page

Waffle Irons, Armstrong ... 535
Irons, Westinghouse ... 526
Wafflefield Red Spot Hangers ... 428
Waldman Wire Measuring Reel ... 416
Wall Boxes, Westinghouse ... 159
Brackets, Bryant ... 117
Brackets, Ornamental, Cutter ... 514
Brackets, Peirce ... 373, 374
Fixture Bases, Bryant ... 117
Flanges, Streethood, Cutter ... 500
Telephones, Kellogg ... 253
Wallace Bench Glue Pots ... 533
Warmers, Chocolate, Westinghouse ... 532
Warming Pads, Westinghouse ... 524
Washers, Hubbard ... 350
Peirce ... 360
Pump, Micarta ... 270
Watchcase Buzzer, Edwards ... 229
Buzzers, PB ... 230
Water Heaters, Tumbler, Westinghouse ... 525
Watthour Meters, Westinghouse ... 310–315
Wattmeters, Recording, Westinghouse ... 324
Switchboard, Westinghouse ... 323
Weatherproof Receptacles, P & S ... 93
Shade Holders ... 84
Sockets, Bryant ... 108
Sockets, P & S ... 94
Wire ... 8
Welding Machine Cables ... 12
Western Union Carrying Hook ... 410
Union Post Hole Spoons ... 412
Union Wire Reels ... 415
Westinghouse Arc-Welding Motor Generators ... 287
Automatic Cutout Hangers ... 490
Automobile Ammeters ... 318
Bake Ovens ... 532
Balance Coils ... 336
Bell Ringer ... 260
Bonding Tools ... 391
Bracket Fans ... 536, 537
Ceiling Fans ... 538
Charging Receptacles ... 160
Choke Coils ... 345
Commodity Friction Tape ... 263
Cooper-Hewitt Rectifier Outfits ... 337, 338
Current Transformers ... 330
Desk Fans ... 536, 537
Disconnecting Switches ... 204
Distribution Transformer Fuse Blocks ... 171
Distribution Transformer Fuse Boxes ... 171
Distribution Transformers ... 333–335
Enclosed Cartridge Fuses ... 166, 168, 169
Exhaust Fans ... 539
Expansion Bolts ... 385
Expulsion Type Fuse Blocks ... 170
Feed Wire Insulators ... 384
Flood Lighting Projectors ... 491
Fuse Ribbon ... 165
Fuse Wire ... 165
Generators ... 284
Heating Devices ... 521–526
High Tension Fuses ... 170
Highway Lighting Unit ... 503
Industrial Heating Appliances ... 532, 533
Insulated Fork Bolts ... 389
Insulated Turnbuckles ... 389
Insulating Materials ... 265–268, 271
Knife Switches ... 180, 181
Lighting Fixtures ... 423, 424
Lighting Transformers ... 518
Lightning Arresters ... 341–344
Luminous Top Socket Fixtures ... 487
Luxsolite Pendants ... 502
Mazda Lamps ... 441–448
Mazda Miniature Lamps ... 449

Page

Westinghouse Meter Service Switches 184–187
Micarta Products 269, 270
Mine Clamps 385
Mine Locomotive Headlights 491, 492
Motor Controllers 297, 298
Motor Generators 282
Motor Starters 194, 200, 201, 296–298
Motor Starting Switches 203
Motors 274–281
Moving Coil Regulators 516–518
Oil Circuit Breakers 300–309
Outdoor Metering Equipment 317
Panel Boards 212–217
Pipe Extension Couplings 385
Plugs and Receptacles 159
Porcelain Insulators 398–401
Pulley Sockets 489
Rail Bonds 389, 390
Ranges 528–531
Recording Instruments 324
Rectigon Battery Chargers 339, 340
Reflector Sockets 484
Reflector-Socket-Fixtures 483
Reflectors 485–487
Regulator Control Panels 516
Safety Motor Starters 202
Screw Compressors 391
Sew Motors 543
Stage Floor Boxes 159
Strain Insulators 389
Street Lighting Equipment 493
Suspension Eyes 490
Suspension Hanger 490
Switchboard Instruments 319, 320, 322, 323
Switchboard Shunts 321
Switchboards 332
Tapes 263
Transformer Load Indicators 336
Trolley Material 383–387
Vaporproof Fixtures 488, 489
Ventilating Fans 539
Voltage Transformers 331
Wall Boxes 159
Watthour Meters 310–315
Wood Strain Insulators 388
Weston Garage Testing Set 325
Switchboard Instruments 325–327
Testing Instruments 325
Wet Batteries, Samson 460
Wheels, Trolley 386
Whip-All, Air-O-Mix 546
Whippers, Air-O-Mix 546
Window Reflectors, Benjamin 475
Springs, Burglar Alarm 227
Wiping Solder 273
Wire, Annunciator 16
Bridal 16
Copper, Bare 9
Drop, Duplex, Telephone 7
Fish, Superior 23
Fixture 6
Fuse, Union 166
Fuse, Westinghouse 165
Guy 17
Insulated, Varnished Cambric 11
Interior, Telephone 16
Interior, Twisted Pair 16
Jumper, Flameproof 16
Magnet 18
Office, Damp-Proof 16
Pothead 7
Resistance, Nichrome 19
Rubber Covered 6
Slow Burning 8
Span 17

Page

Wire, Telegraph, Galvanized 17
Telephone, Copper Clad 7
Telephone, Galvanized 17
Telephone, Rubber Covered 7
Trolley, Copper 9
Weatherproof 8
Wire Armored Cables 12
Bayonets, Ground, Hubbard 365
Clamps, Ground, Hubbard-Beleher 367
Clamps, Guy, Hubbard 349
Connectors, Bryant 160
Cutters, New Easy 419
Gauges, American 416
Gauges, Standard, American 416
Grips, Chicago 406
Grips, Haven's 406
Grips, Klein 406
Holders, Fletcher 403
Holders, Peirce 370
Measuring Reel, Waldman 416
Reel and Meter 416
Rope Clips, Hubbard 350
Solder 273
Strand, Steel 17
Wireless Clusters, Benjamin 154
Wiremold Conduit 26, 27
Conduit Bender 29
Conduit Fittings 26–29
Wiring Diagrams, H & H 140, 141
Wirt Fan and Vibrator Regulator 454
Wizard Bell Ringing Transformers 259
Wood, Asbestos 264
Wood Cord Adjusters 85
Mats, Bryant 124
Molding Receptacles, P & S 91
Pins 348
Pole Steps 348
Push Buttons 225
Screws, Brass 380
Screws, Iron 380
Strain Insulators, Westinghouse 388
Top Pins, Hubbard 357
Woodpecker Telefaults, Matthews 223
Woven Tape, J-M 262
Wrenches, Lag Screw, Klein 406
Matthews 378
Socket, Bryant 103
Socket, P & S 83
Standard 419
Stillson 419
Trimo 419
Wrinklet Fixture Socket Line, Bryant 100

X

X-Ray Floodlight Projectors 520
Show Window Reflectors 481, 482
XXX Bells, PR 230
Buzzers, PR 230

Y

Yankee Ratchet Drills 414
Screwdrivers 413
Telephones, Couch 243
Yarns, Asbestos, J-M 262

Z

Zinc Crowfeet 460
Zincs, Battery 460
Cylinder 460
Pencil 460